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LAKE PLANNING GRANTS FOR MAUSTON STORM WATER MANAGEMENT PLAN 1997

VIERBICHER ASSOCIATES
Twenty Years Of Quality & Service

LPL 515
-517

November 4, 1997

David Pelton, Mayor
City of Mauston
303 Mansion Street
Mauston, WI 53948

RE: Proposal to Provide Professional Consulting Services
Storm Water Management Plan

Dear Mr. Pelton:

Vierbicher Associates, Inc. is pleased to provide this proposal for professional consulting services to the City of Mauston for the preparation of a Storm Water Management Plan. This proposal is structured as a two-party agreement between the City of Mauston (City) and Vierbicher Associates, Inc. (Consultant). These services will be conducted as part of the City of Mauston's DNR Lake Planning Grant Program.

I. PROJECT DESCRIPTION

The purpose of the Storm Water Management Plan will be to recommend storm water quality and quantity Best Management Practices in the City. This plan will address issues and make recommendations which will minimize storm water runoff, prevent flooding, and improve the quality of storm water runoff discharging to Decorah Lake.

The City of Mauston has identified a need to prepare a Storm Water Management Plan. A significant amount of localized flooding is taking place plus sediment, debris, and storm water pollutants are also entering the storm water system and Decorah Lake.

The proposed storm water planning area includes the entire corporate limits of the City of Mauston plus the watershed areas adjacent to the City which convey storm water through the City to Decorah Lake and the Lemonweir River.

The City will utilize three $10,000 grants from the DNR Lake Planning Program to help fund the Storm Water Management Plan. Two of the grants were awarded in October 1997. The third grant is expected to be awarded in April 1998. Work activities will be done in compliance with the grant program.

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II. SCOPE OF SERVICES

A. Scope of the Plan

The Storm Water Management Plan will include the following tasks:

- Task 1.0 Meetings
- Task 2.0 Background Data Collection
- Task 3.0 Field Reconnaissance and Mapping
- Task 4.0 Field Data Collection/Inventory of Existing Drainage Facilities
- Task 5.0 Define Watershed and Subwatershed Drainage Areas
- Task 6.0 Categorize Present and Future Land Use of Drainage Area
- Task 7.0 Identify Existing Soil Condition, Wetlands, and Surface Waters
- Task 8.0 Identify Existing Biological Communities
- Task 9.0 Characterize the Quality of Existing Storm Water Discharges
- Task 10.0 Hydrologic, Hydraulic, and Storm Water Management Computer Analysis and Modeling
- Task 11.0 Develop Water Quality Analysis
- Task 12.0 Evaluate Alternatives
- Task 13.0 Federal, State, and Local Regulations Impact
- Task 14.0 Identify Capital and Maintenance Costs
- Task 15.0 Develop an Implementation Strategy
- Task 16.0 Develop Proposed Storm Water Monitoring Plan
- Task 17.0 Develop Proposed Storm Water Management Programs
- Task 18.0 Demonstrate How the City Will Use the Plan Information
- Task 19.0 Quality Control/Quality Assurance

B. Scope of Services

Following is a scope of services to be provided by Vierbicher Associates, Inc. for the Storm Water Management Plan.

1. Task 1.0 - Meetings

   Description and Task Approach:
   Conduct an initial meeting with the City of Mauston, Wisconsin Department of Natural Resources, and other applicable agencies to review the project, discuss information, and identify project concerns and objectives.

Throughout the course of the plan preparation, various progress meetings will be held with the City to review and monitor the ongoing status of the Storm Water Management Plan. These meetings include, but are not limited to, the first coordination meeting described above, a meeting to review computer modeling results, a public input meeting, the 75% project completion meeting, meetings to review preliminary draft reports, and a final presentation of the plan to the City.

These meetings will provide the necessary forums to gather and discuss background information, assist with determination and feasibility of Best Management Practices, improvement alternatives, input, and comments for finalizing the Storm Water Management Plan.

Deliverable: Public meetings, public input, public comments, staff input, staff comments, news release, preliminary report, and final report.

2. Task 2.0 - Background Data Collection

Data to be collected for the watershed area will include the following items:

- Interview farmers and other land owners within the watershed.
- Interview business owners and residents within the watershed district areas.
- Interview City staff.
- Review previous reports and data.
- Planning reports.
- Previous consultant designs, studies, and reports.
- FEMA information.
- FEMA floodway and flood insurance rate maps.
- Zoning and other land use information, present and future.
- Assessor's maps, plats, and plat maps.
- Existing and projected population data.
- Planned and existing land use densities.
- Flood plain mapping.
- Meteorological data.
- SCS soils maps.
- Unpublished information from federal, state, and local units of government concerning past flooding and drainage problems including anecdotal evidence such as personal experience, photos, and video tapes.
- Existing bridge and culvert design data.
- Existing storm sewer systems maps and as-built information.

- Existing U.S.G.S. and topographic maps.
- Agricultural and subdivision drainage, street, road, detention ponds, lakes, channels, and ditch plans in watershed area.
- Information regarding water quality, water quantity, wetlands, and environmental concerns from the City.
- Available soil boring, watertable, and subsurface geology data.
- Information regarding historical and archaeological sites.
- Vertical control information (Benchmark Data).
- Horizontal control information.

Deliverable: Collect all existing data, maps, information, and interviews within the planning area.

3. Task 3.0 - Field Reconnaissance and Mapping

The proposed hydrologic, hydraulic, water quality, and storm water management modeling methodologies require evaluating existing conditions. Therefore, after data has been collected, a field reconnaissance of the watershed area will be made. The purpose of this reconnaissance will be to determine and verify the vegetation, soil, land use, water quality, hydrologic, and hydraulic condition of the study area, and field data collection scope of work. The type and quantity of existing water quality, hydraulic structures, and elements will be noted. Areas of biological and environmental diversity will be observed and documented including water quality conditions and wildlife habitat. Photographs and video tapes will be taken and logged at key points to help determine the water quality, hydrologic and hydraulic values, and input data for use with computer modeling methodologies.

The field reconnaissance will include a tour of the entire drainage basin so existing and future development impacts can be fully evaluated. Tentative locations for Best Management Practices will be determined. Essentially, the field reconnaissance will be a "heads up", "eyes open", field review of the study area to determine if background information reflects actual field data and if additional field data needs to be obtained.

This task includes preparing Planemetric Topographic Maps for a majority of the corporate limits of the City plus areas adjacent to the City. (See Map #1 for the area to be mapped.) The aerial photography from 1995 will be used to generate the topo maps. The topographic maps will be prepared in both digital and hard copy (1" = 100') format. All data will be tied to the local coordinate system and will be linked to the city's Geographic Information System (GIS). A proposal from Horizons, Inc. for the mapping is attached as Exhibit A.

Deliverable: Planemetric two foot contour maps within City corporate limits and adjacent areas. (See map #1 for area to be mapped.) Field reconnaissance "heads up", "eyes open" tour and evaluation of the planning area.

4. Task 4.0 - Field Data Collection/Inventory of Existing Drainage Facilities

Before a specific storm water management plan can be developed, the location and condition of existing drainage facilities must be known. Based on this information the infrastructure for future management efforts will be established. Under this task, the age and condition of existing drainage facilities will be determined, hydraulic capacity evaluated, and impact on storm water runoff quantity and quality addressed.

City staff, field survey crews, and engineering technicians will obtain the necessary data for input into hydrologic, hydraulic, water quality, and storm water management computer models; determine size and capacity of existing storm sewer and other storm water management facilities; determine size, material type, and elevations of existing culverts and bridges; obtain stream channel cross-sections several hundred feet upstream and downstream of significant culverts and bridge structures; review and document storm water management facility outflow control structures; and determine controlling static water elevations of surface water bodies. The field survey data collection will be performed utilizing Global Positioning System (GPS), Real Time Kinematic (RTK) surveying equipment.

A majority of field data needed for input into hydrologic, hydraulic, water quality, and storm water management models and for developing the study map exhibits can be obtained from existing aerial photography, proposed planemetric topographic maps, and USGS quadrangle maps. The study is most economically completed by minimizing field efforts where practical and maximizing the use of mapping and existing data.

Field data collection activities will also include a review and documentation of existing Best Management Practices. Inventory of existing Best Management Practices will include, but not be limited to the following items:

- Land use and industrial activity
- Erosion and sediment sources

- Topography - street and land slopes
- Infiltration areas or trenches
- Grass swales and channels
- Open space/park lands suitability for flood control structures
- Drainage system type/condition/material/slope
- Wet detention pond characteristics and outlet structures
- Bridges and culvert sizes/material/condition/slope
- Agricultural crop and vegetation types
- Stream bank and channel erosion control
- Conservancy areas
- Wetlands and constructed wetland areas
- Water surface elevations
- Verification of sizes and units of key hydraulic structures
- Street profiles perpendicular to drainageways
- Flood storage capacities of lakes, ponds, detention, and retention basins
- Existing storm sewer pipe information

A meeting with representatives of the City will be held to review the performance of the existing storm water system and determine its usefulness for future systems. Specifically, the review will address:

- How well the existing facilities are functioning from both quantity and quality perspectives.
- What problems, if any, are occurring.
- What plans have been formulated to accommodate future development within the planning area.

An updated map of the municipal storm water system will be created including a description and map of a trunkline storm sewer system for future development areas.

Deliverable: Obtain necessary existing storm sewer and storm water management data for input into hydrologic, hydraulic, water quality, and storm water management computer models.

5. Task 5.0 - Define Watershed and Subwatershed Drainage Areas

Before an effective storm water drainage study can be developed, the "lay of the land" and "characteristics of the land" must be determined. Storm water runoff and drainage patterns are an important aspect of identifying and evaluating of water quantity and quality problems within the watershed. Watershed land slopes, areas, land uses, vegetative cover, existing storm water management facilities, and existing Best Management Practices are critical elements to subsequent modeling, analysis, and planning tasks.

Aerial photography, planemetric topographic maps, USGS quad maps, and the recently completed Land Use Plan will be utilized as base maps for developing study exhibits. Watershed, subwatershed, drainage patterns, and subbasins will be delineated and indicated on the aerial photography and topographic maps. A watershed map will be prepared which will serve as a base map for preparation of other appropriate study map exhibits.

Deliverable: Define and map "lay of the land" and "characteristics of the land" within the planning area.

6. Task 6.0 - Categorize Present and Future Land Use of Drainage Area

Land uses have a significant impact on storm water runoff quality and quantity discharges. New development increases the speed and volume by which runoff occurs. Runoff quality can be negatively impacted by the types of upstream uses of land and the pollution to which storm water runoff can be exposed. Therefore, land uses are an integral part of the Storm Water Management Plan for both modeling and planning.

The City's existing Land Use Plan will be incorporated into the study analysis to determine future runoff quantities and pollutants. Present and proposed future land uses will be determined for the rest of the planning area outside of the area included within the City Land Use Plan.

A colored digital CADD map exhibit of existing and future land uses will be prepared.

Deliverable: Utilize and map present and year 2015 land uses from City Land Use Plan for input into hydrologic, hydraulic, water quality, and storm water management computer models.

7. Task 7.0 - Identify Existing Soil Condition, Wetlands and Surface Waters

Existing soil conditions impact the quality, volume, and quantity of storm water runoff. Clayed soils (versus sandy soils) reduce the potential for infiltration and promote large volumes of runoff. The hydrologic, hydraulic, water quality, and storm water management models require this information. Therefore, it is important the soil condition data input into the modeling programs is as accurate as possible.

Surface waters will also be identified. Surface waters are part of the watershed's conveyance, storage, and water quantity/water quality Best Management Practices system. They form the backbone of any management plan. Surface waters do not only consist of lakes, ponds, creeks, and streams. Wetlands are also a very important and integral part of the surface water hydrology and hydraulic system. Wetlands provide opportunities for mitigating runoff flow velocities and volumes. Wetlands also provide an excellent water quality pre-treatment system.

Greenway and conservancy delineation is also integral to this task. Greenways and conservancy areas not only reduce flows and volumes and provide an important conveyance function, but they also provide a potential for water quality enhancement through infiltration and they reduce runoff velocities.

Soil information data and aerial maps will be reviewed for the location of surface waters and wetlands. The U.S. Department of Agriculture - Natural Resource Conservation Service (f/k/a SCS) Soil Survey Data and Maps and WI DNR Wetland Inventory maps will be reviewed. Field data collection and reconnaissance surveys (as previously discussed) will be made to verify location and extent of wetlands and surface waters. Soil data, wetlands, and surface water bodies will be established as a separate colored CADD map exhibit drawing layer.

Deliverable: Identify and map existing soil condition, wetlands, and surface waters from the City Land Use Plan and City GIS project for input into the computer models and for developing Best Management Practices.

8. Task 8.0 - Identify Existing Biological Communities

To perform future evaluations of the effectiveness of water quality improvements recommended in the storm water management plan, an inventory of existing biological communities within the planning area needs to be made. The Consultant will meet with the City to review any information available regarding biological communities within the planning area.

Deliverable: Inventory and document existing biological communities within the plan area from existing documents and previous studies.

9. Task 9.0 - Characterize the Quality of Existing Storm Water Discharges

To conduct storm water quality management planning, base line water quality data must be established. Therefore, water quality sampling will be conducted at selected locations within the watershed during representative storm events. Sampling will only be performed to the extent necessary to establish a representative water quality baseline. "Grab sample" techniques will be used.

Appropriate sampling parameters will include but are not be limited to:

- Suspended Solids (sediment)
- Phosphorus
- Lead
- Zinc

Using this data, predicted pollutant loading from various land uses can be developed. If excessive, these loadings can be addressed by specific storm water management practices.

The samples will be tested for the parameters previously listed. The data obtained will be compared with Nationwide Urban Runoff Program data (NURP), and other data obtained from similar sampling efforts to determine consistencies with past data or uniqueness of the collected data for this area. A qualified private laboratory will be utilized to analyze the samples.

In addition, dry weather field observations of major storm sewer outfalls will be made to characterize the existence of illicit connections. At sites where flow is observed, two grab samples will be collected during a 24 hour period with a minimum of four hours between samples. Flow estimates will be made. Field screening analysis will include temperature, PH, total chlorine, total copper, total phenol, and detergents. Portable colorimetric field test kits will be used.

The study will also review existing water quality data, industrial site storm water permit applications, Clean Water Act reports and lists, as well as local reports and data.

Deliverable: Obtain minimal wet and dry weather base line water quality samples from City storm water conveyance system and analyze for suspended solids (sediment), phosphorus, lead, and zinc. Compare base line data with WDNR data and Nationwide Urban Runoff Program data (NURP).

10. Task 10.0 - Hydrologic, Hydraulic, and Storm Water Management Computer Analysis and Modeling

The background, field reconnaissance, and field data collection activities will be documented and categorized into formats compatible with the hydrologic, hydraulic, and storm water management computer models selected for the management area. Information from previous studies and engineering designs will be reviewed and used if deemed acceptable. Hydrologic and hydraulic values such as soil types, surface roughness coefficients, (Mannings N and SCS CN Values), time of concentration (TC), travel time (TT), initial abstraction losses (IA), and land uses will be determined. The study will include hydrologic, hydraulic, and storm water management system models of watershed, subwatersheds, and subbasins for the 2, 10, 25, and 100 year 24-hour storm events based on existing land use, future land use, and future land use alternative Best Management Practice recommendations.

The hydrologic, hydraulic, and storm water management system models will be performed to determine runoff quantities, flood stages, velocities, and the adequacy of existing and proposed storm water management facilities and conveyance systems. Major storm water management systems and conveyance facilities which will be reviewed and analyzed include, but are not limited to, existing and proposed greenways, conservancy areas, channels, ditches, detention areas, retention areas, streets, culverts, and bridges.

It is also important to analyze minor storm events. Experience shows that such events, on a recurring basis, can result in significant drainage, erosion control, and water quality problems. Minor storm water facilities (e.g. those systems intended to address convenience drainage during minor storm events such as the 10 year storm event or less) will also be reviewed, where practicable, such as storm sewer pipe systems, proposed storm sewer pipe diversion alternatives, curb and gutters, and swales.

The hydrologic, hydraulic, and storm water management design computer modeling will use a single or a combination of the following methodologies:

- TR-55 Small Watershed Hydrology Program
- TR20 - Large Watershed Project Formulation Hydrology/Hydraulic Program
- HEC1 - Flood Hydrologic/Hydraulic Routing Program
- HEC2 - Open Channel/Flood Plain Hydraulic Program

- HEC-RAS-HEC2 Revised Open Channel/Flood Plain/Hydraulic Program
- WSPRO - Open Channel/Flood Plain Hydraulic Program
- Haestad Pond Pack - Detention Basin Design Program
- THYSYS - Storm Sewer/Open Channel/Hydrologic and Hydraulic Design
- Haestad Storm CADD - Storm Sewer Design/Analysis Program

Hydrologic, hydraulic, and storm water management system modeling analysis will be performed for the entire watershed, subwatersheds, and individual subareas within watersheds. Results from computer models will be provided in user-friendly disk, hard copy table format, and also depicted on colored CADD map exhibits.

Deliverable: Perform storm water runoff quantity analysis for present and year 2015 Land Use and for alternative Best Management Practices utilizing various computer software methodologies.

11. Task 11.0 - Develop Water Quality Analysis

A water quality analysis will be performed using either the Wisconsin Department Natural Resources simplified spreadsheet method, Source Loading Management Model (SLAMM), Agricultural Non-Point Source Model (AGNPS), or P8 Urban Catchment Model. This task is intended to provide pollutant loading estimates at all outfalls and respective sub-basins for the following constituents:

- Suspended solids (sediment)
- Phosphorus
- Zinc
- Lead

Event mean concentrations for these constituents will be reviewed with water quality data obtained during the storm water characterization task and from National Urban Runoff Program Study data.

The water quality analysis and computer model will be utilized to determine study and planning level water quality impacts based on existing and future land uses for the following cases:

- Managed and unmanaged conditions
- Managed storm water pollutant loadings from both existing and future planned land use conditions.
- Managed case will evaluate various Best Management Plan Practices including a mix of non-structural source controls and structural controls.

Alternative Best Management Practices and source controls will be ranked for their effectiveness and feasibility in improving water quality to the maximum extent practical. Results from the water quality analysis will be presented in a summary table with an easy to follow interpretation, along with colored CADD map exhibits of the watersheds and subwatersheds. The storm water management plan will recommend the preferred Best Management Practices and storm water management strategy for the City. It will also identify the land required to implement the recommended practices.

Deliverable: Perform water quality analysis for study area based on present and year 2015 land use, and for alternative Best Management Practices utilizing SLAMM, AGNPS, and/or P8 Urban Catchment computer modeling methodologies.

12. Task 12.0 - Evaluate Alternatives

Evaluate water quality and various alternatives to alleviate and mitigate present and future drainage and flood control problems. The types of alternatives evaluated will depend on the hydrologic, hydraulic, water quality, and storm water management system modeling results. The alternatives must be tailored to address the identified concerns and problem areas. The alternatives will be presented and evaluated at progress meetings. Selected alternatives will be included in the final report.

Alternative Best Management Practices (BMP's) that will be evaluated will include, but not be limited to the following non-structural and structural BMP's:

Non-Structural BMP's

- Review existing municipal runoff ordinances and recommend a model ordinance if needed.
- Review environmental erosion control ordinance and enforcement review and recommend model ordinance if needed
- Public education and information program
- Newspaper articles
- Watershed newsletters
- Review land use and comprehensive plan (rezoning)
- Agricultural land management practices
- Emergency spill response programs
- Identify illicit connections
- Street sweeping program

Structural BMP's

- Wet detention/sedimentation basins
- Constructed wetlands
- Infiltration basins/dry detention basins
- Creek/drainageway/channel erosion control and stream bank stabilization
- Creek/drainageway/channel storage, widening, and diversion
- Bridge and culvert improvements
- Storm water diversion
- Storm sewer pipe system improvements
- Vegetative buffer strips at major drainageways
- Grass lined channels/drainageways and conservancy areas
- Multiple pond systems
- Natural low area field storage/wetland surcharge
- Flood control structures and modifications/low head dams

A listing of the selected site specific water quality, drainage, and flood mitigation Best Management Practice alternatives will be provided and depicted on colored CADD map exhibits. The selected mitigation project list will be prioritized over a 15 to 20 year implementation period.

The alternative water quality, drainage, and flood control improvements will be recommended based on the following:

- Interviews with residents
- Interviews with farmers
- Interviews with business owners
- Interviews with the City
- Meetings with the City
- Background data collection
- Field reconnaissance
- Field data collection/inventory of existing drainage facilities
- Land use/open spaces/park land
- Soils/wetlands/surface waters
- Hydrologic/hydraulic/water quality/storm water management modeling
- Public comments
- Capital and maintenance costs
- Funding sources
- State, federal, and local regulations
- Industrial storm water permits

Deliverable: Evaluate storm water quantity and quality structural and non-structural Best Management Practices alternatives to mitigate present and future drainage, flooding, and water quality degradation concerns.

13. Task 13.0 - Federal, State, and Local Regulations Impacts

Storm water drainage and storm water quality regulations are rapidly evolving at both the state and federal levels. Watershed projects are funded based on improving water quality. EPA has mandated storm water regulations which include industry, construction sites, and municipalities. EPA has given states the responsibility for implementing and enforcing industry, construction site, and municipal storm water discharge regulations on the state level. The study will review state and federal regulations for conformance with the recommended study water quality and flood control improvements.

Deliverable: Review State, Federal and local regulations for compliance with recommended plan water quality, drainage, and flood control improvements.

14. Task 14.0 - Identify Capital and Maintenance Costs

Capital and maintenance costs will be identified for the selected Best Management Practices. The estimated capital and maintenance costs will be a factor in the priority of selected BMP's. The concept of identifying capital and maintenance costs is vital to long term storm water management planning, funding, and budgeting and for developing a cost effective implementation plan.

The plan will include an itemized opinion of probable costs for each evaluated BMP alternative. These costs will be reviewed and discussed with the City to incorporate feedback before including them in the final storm water management plan report.

Deliverable: Itemized opinion of probable cost for each selected Best Management practice along with a prioritization schedule over a 15 to 20 year implementation period.

15. Task 15.0 - Develop an Implementation Strategy

The storm water management plan cannot be effectively implemented without a comprehensive schedule to complete the recommended BMP's over a period of time. This storm water management plan will not be successful unless the implementation plan is closely monitored, properly funded, and constructed in compliance with design intent and regulatory requirements.

The schedule of improvements will be dictated by available funding and fiscal resources. Preferred alternatives, associated drainage and flood project capital improvements, and maintenance costs must be carefully evaluated for their cost effectiveness prior to developing the implementation plan.

The plan will include an implementation strategy as part of the storm water management plan. It will outline a hierarchy of activities for implementation based on positive impact and available funds. The report will include a table summarizing the specific project elements, cost, and time schedule for implementation.

The plan will include a review and discuss potential funding sources to include but not be limited to the following:

- State grants
- Federal grants
- Storm water utility district creation
- Storm water impact fees
- Storm water special assessment districts
- Development charges
- Fees-in-lieu of individual on-site detention
- State low interest loans
- Developer plan review and inspection fees
- Storm water service charges
- EDA public works grants
- Tax Incremental Financing

Deliverable: Review and discuss potential plan implementation funding sources.

16. Task 16. 0 - Develop Proposed Storm Water Monitoring Plan

The plan will establish a proposed long-term monitoring program for the City. The goals of the monitoring program are to obtain data, use pollutant loading estimates from Task 9.0, consult State and Federal water quality data to define objectives, and coordinate these objectives with the proposed storm water management plan.

The monitoring program is intended to address the following areas:

- Validation of estimated pollutant loading
- Assessment of the performance of structural and non-structural Best Management Practices
- Progress on the effective prohibition of non-storm water discharges (illicit discharges).

A comprehensive monitoring program will be developed to support the following specific goals:

- Characterize storm water discharges from the municipality's separate storm sewer system.
- Evaluate the source(s) of specific pollutants.
- Evaluate and review the performance of specific controls.
- Evaluate the overall effectiveness of management programs.

Identification of water quality impacts will be determined as site-specific conditions and assessment objectives dictate. The proposed monitoring program plan will include long-term collection of samples utilizing the "grab sample" or "automatic sampler" method and laboratory analysis.

Deliverable: Develop proposed long term storm water runoff monitoring program for the City to validate the intent of implemented Best Management Practices.

17. Task 17.0 - Develop Proposed Storm Water Management Programs

Previously outlined tasks are part of an effective storm water management program. The purpose of the storm water management program is to reduce flooding and drainage concerns as well as to reduce the level of pollution discharging from the watershed storm drainage system to Lake Decorah. The prescribed storm water management program will include, but not be limited to the following:

- A comprehensive planning process that involves public participation and any necessary intergovernmental coordination to reduce flooding and drainage problems as well as the discharge of pollutants to the maximum extent practicable.
- Describe staff and equipment available to implement the program. Separate proposed programs may be provided.
- Controls imposed on a system wide basis, a watershed basis, a jurisdiction basis, or on individual outfalls.

- Reduce flooding, drainage problems, and pollutants in discharges to the maximum extent practicable.
- Describe priorities for implementing controls.
- Describe structural and source control measures to reduce flooding concerns, drainage concerns, and pollutants from runoff from commercial and residential areas.
- Describe a program, including a schedule, to detect and remove (or require the discharges to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.
- Describe a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system.
- Describe a program to implement and maintain structural and nonstructural Best Management Practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system.

Deliverable: Provide the City with the basic building blocks to implement a successful storm water management program to mitigate water quality degradation, drainage, and flooding concerns that includes the City residents, developers, builders, intergovernmental coordination, and City and County staff and officials.

18. Task 18.0 - Demonstrate How the City Will Use the Plan Information

An oral presentation and a written executive summary narrative report will be provided demonstrating how the City will interpret the storm water management plan information, maps, and documents. The demonstration will be presented in a format that can be easily understood by all citizens not familiar with drainage, flood control, and water quality Best Management Practices.

Deliverable: Educate and present to City staff and residents how to interpret the storm water management plan information, maps, and documents for long term use and updating.

19. Task 19.0 - Quality Control/Quality Assurance

Project study quality control is an integral part of the successful completion of any project. Accordingly, the Consultant will develop a comprehensive quality control approach to assure the project goals, objectives, and schedule are met. This approach includes, but is not limited to, the following:

- The Project Manager will review preliminary data collected for applicability to the goals and objectives of the storm water management study.
- The Project Manager will review following analysis of existing data.
- The Project Manager will review hydrologic, hydraulic, water quality, and storm water management computer modeling analysis and study report at 50% completion.
- The Project Manager will review final hydrologic, hydraulic, water quality, and storm water management computer modeling including alternative BMP's, water quality, flood and drainage improvements and study report at 75% and 90% completion.
- The Project Manager will review the draft of the final storm water management plan document prior to assembly and presentation to the City.

Deliverable: Vierbicher Associates in-house comprehensive quality control review approach to assure that the project goals, objectives, budget, and schedule of the City and WDNR are met.

C. Services Not Provided as Part of This Contract

Environmental investigations and studies, archaeological and historical investigations and studies, wetland delineation and permits, soil borings to determine subsurface conditions, easements, land surveys, detailed engineering and design, and other detailed studies, permits or investigations that might arise are not included as part of this contract.

D. Responsibilities of the City

Preparation of the Storm Water Management Plan will be done jointly by City staff and Vierbicher Associates staff. The cost incurred by the City for the activities performed by their staff will be counted by the DNR and toward the City's local match required by the Lake Planning Grant. Following is a summary of activities that will be the responsibility of the City.

1. Organize a Storm Water Planning Committee.
2. Publish and distribute public notices.
3. Prepare and distribute minutes of City meetings.
4. Make available copies of pertinent documentation, maps, reports, and other material within its control.
5. Allocate staff for meetings deemed necessary to complete the plan.
6. Collect field data including location, type, size, and condition of existing storm sewer and other storm water drainage facilities. (Portions of Tasks 3.0 and 4.0.)
7. Collect water samples at selected locations within the watershed and send to the laboratory for testing. (Portions of Task 4.0.)

III. TIMETABLE

The Storm Water Management Plan will be completed in coordination with the timetable required by the DNR Lake Planning Grants. Three $10,000 grants will be provided by the DNR. The first two were awarded in October 1997. The third grant will be awarded in April 1998. The work activities related to the first two grants will be performed between November 1997 and April 1998. The work activities related to the third grant will be completed between April 1998 and June 1998.

IV. DESIGNATION OF RESPONSIBLE PARTIES

Overall coordination and project supervision will be the responsibility of Russell Kiviniemi, PE. Frank Brey, PE will be the Manager-in-Charge. Plan information will be prepared by Russ. All communication regarding the project should be directed to Russ or Frank.

The City of Mauston designates Lanny Gleason, DPW as their representative. We will direct all communication regarding the project to him.

V. PROPOSAL

A. Summary of Costs

Fees for the preparation of a Storm Water Management Plan is a lump sum of $25,000 which is summarized below.

Task 1.0: Meetings	$2,000
Task 2.0: Background Data Collection	$500
Task 3.0: Field Reconnaissance and Mapping	$2,000*
Task 4.0: Field Data Collection/Inventory Work	$1,500*
Task 5.0: Define Drainage Basins	$500
Task 6.0: Categorize and Map Land Uses	$500
Task 7.0: Identify Soil Conditions, Surface Waters, and Wetlands	$500
Task 8.0: Identify Existing Biological Communities	$500
Task 9.0: Characterize the Quality of Existing Discharges	$2,200*
Task 10.0: Hydrologic, Hydraulic, & Storm Water Mngmt Modeling	$3,500
Task 11.0: Develop Water Quality Analysis	$5,000
Task 12.0: Evaluate Alternatives	$2,500
Task 13.0: Discuss Impacts of Federal, State, and Local Regulations	$500
Task 14.0: Identify Capital and Maintenance Costs	$500
Task 15.0: Develop Implementation and Funding Strategy	$500
Task 16.0: Develop Proposed Monitoring Plan	$500
Task 17.0: Develop Proposed Storm Water Management Program	$800
Task 18.0: Demonstration of How the City Will Use the Information	$500
Task 19.0: Quality Control/Quality Assurance	$500
Subtotal	$25,000

In addition to the above charges, the cost for the topographic mapping is $15,000. Attached is a proposal from Horizon's, Inc. for these services.

*In addition, it is estimated the City of Mauston will incur $5,000 of in-kind costs for work that City staff performs in relation with Tasks 3.0, 4.0, and 9.0.

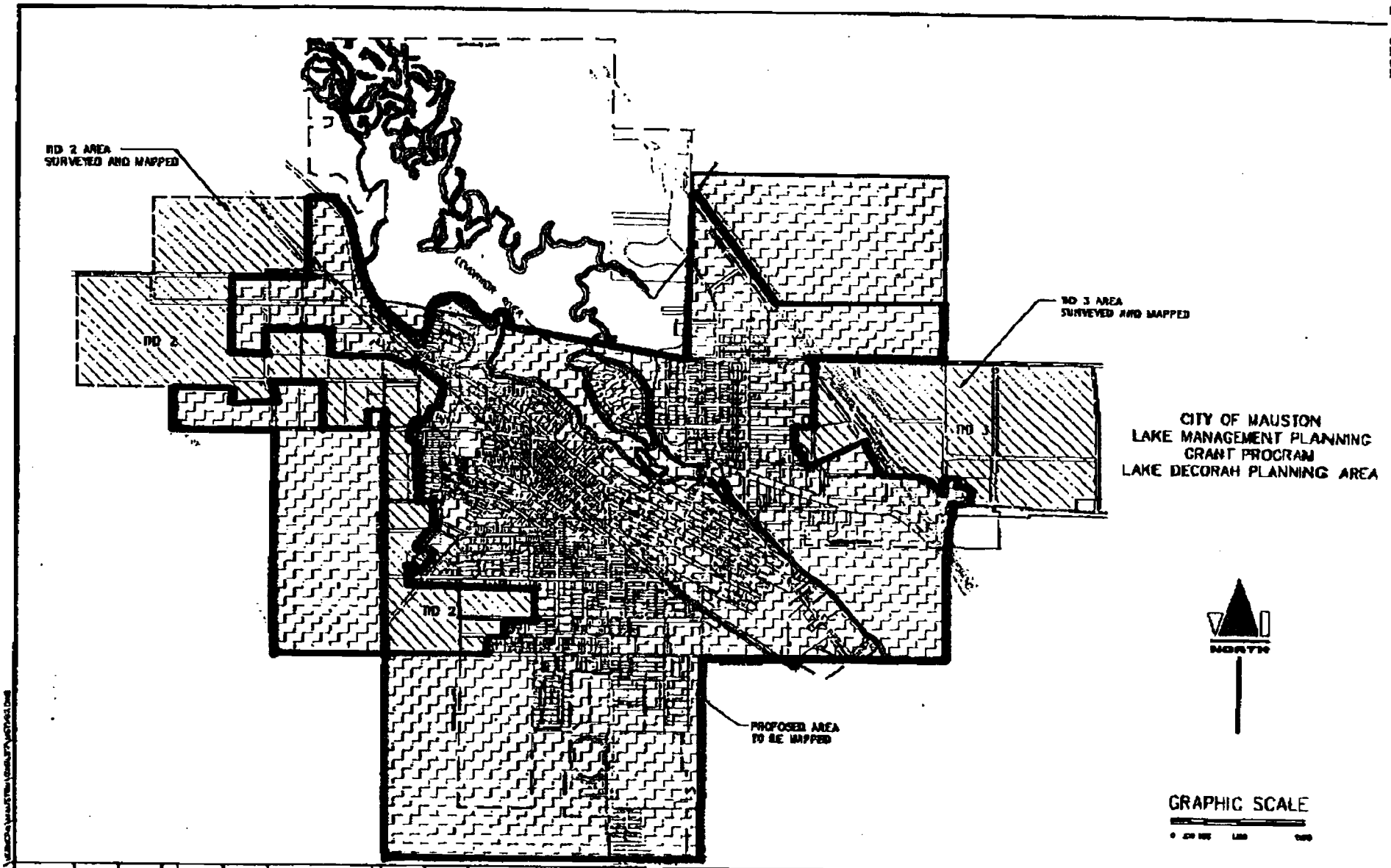
B. Source of Funding

The total cost for the plan is $45,000. The source of funds is as follows:

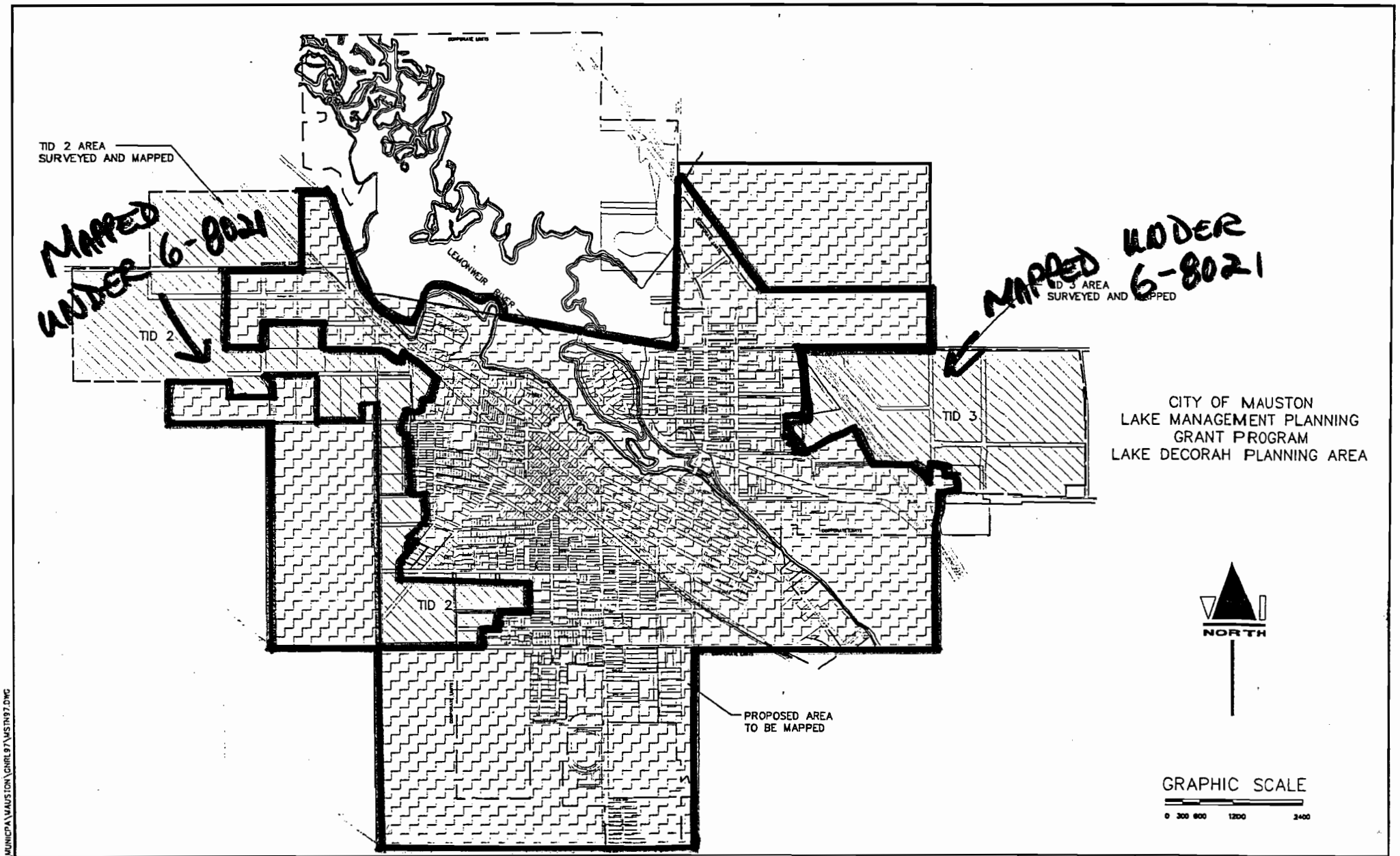
1.	Three $10,000 DNR Lake Planning Grants	$30,000
2.	City Funds	$10,000
3.	Value of City Staff Assistance	$5,000

C. Terms

Charges will be invoiced monthly with a quarterly report and payments due within 30 days of receipt of invoice. Charges for work activities related to the third DNR grant will be invoiced after the grant award is made.



VIERBICHER ASSOCIATES



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FIELD BOOK	DRAFTER	CHECKED
	SRC	

REVISION	DATE	REMARKS

REVISION	DATE	REMARKS

VIERBICHER ASSOCIATES
400 VIKING DR.
P.O. BOX 378
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608-524-8488

JOB NUMBER	FILE NUMBER	DATE	SHEET
2977625		10/97	1 OF 1