

APR - 6 2000

Date of Report: March 28, 2000

LCMR Work Program Update

I. Project Title and Project Number: Phalen Wetland Restoration (G3)

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A. Legal Citation: ML 95, Ch.220, Sec.19, Subd.8(e)

Total biennial LCMR appropriation: \$115,000

Balance: \$ 0

Appropriation Language: This appropriation is from the trust fund to the Board of Water and Soil Resources for an agreement with the City of Saint Paul to restore a wetland at the south end of Lake Phalen. This appropriation must be matched by at least \$50,000 in nonstate money.

B. Legal Citation for extension: ML 97, Ch. 216, Sec. 15, Subd. 26(a)

Extension Language: The availability of the appropriations for the following projects is extended to June 30, 1998: ...subdivision 8, paragraph (e), Phalen wetland restoration; ...

C. Status of Match Requirement:

Match Required: \$50,000

Amount Committed to Date: \$193,198

Match Spent to Date: \$193,918

II. Project Summary:

The Phalen Wetland Restoration Project restored about four acres of wetlands at the south end of Lake Phalen on Saint Paul's East Side. The wetland is a neighborhood amenity that restores the site's natural stormwater cleaning function, reduces nonpoint source pollution, enhances wildlife habitat and storm water detention, expands our understanding of how to achieve biodiversity in restored wetlands, and provides an environmental education resource.

The project has state and national significance as a model to demonstrate a more ecological approach to urban storm water management. It demonstrates a new approach to storm water

management beyond simply providing detention basins and making sure sewer pipes are large enough. The wetland was designed to filter and clean storm water at the same time providing valuable habitat for wildlife and an amenity for the surrounding neighborhood.

The project has state and national significance as a model for urban wetland restoration. It demonstrates how wetland restoration in a fully developed urban area can provide important environmental benefits such as storm water cleaning and wildlife habitat. The project has state and national significance as a model to demonstrate how to achieve biodiversity in urban wetland restoration. The project, in a highly visible urban location, was done in partnership with state agencies and leading experts at the University of Minnesota to demonstrate how to achieve biodiversity in rural as well as urban wetland restoration.

III. Six Month Work Program Update Summary:

January 1, 1996

We have been meeting regularly during the past six months with the University of Minnesota Department of Landscape Architecture staff. The purpose of those meetings was to give direction and feedback on their design sketches for the Phalen Wetland Restoration Project. It is anticipated that their work will be done by the end of January or by mid February. A problem developed because we didn't keep one of the stakeholders informed enough of our progress. This has set our proposed timeline back about six weeks.

Another problem developed in December when we learned that the Minnesota Waterfowl Assn. is going to reduce their grant commitment by \$10,000. Fortunately, another funding source appeared and we were able to cover the shortfall.

An opportunity surfaced regarding wetland banking. We have been approached by someone needing wetland credits. We are working with them and perhaps with the extra funding, we can improve our project. The LCMR will be kept informed of our progress in light of potential conflict issues raised by John Velin.

July 1, 1996

Our team has continued to meet periodically during the last six months. The problem with one of the stakeholders mentioned above was resolved.

On April 17, the preliminary plan for the wetland restoration was presented to a neighborhood meeting. Approximately 80 to 100 people attended. Joan Nassauer, the architect of the wetland restoration plan, described the project with slides and color renderings.

With the exception of a couple of skeptics, the response was very positive. The attendees were very concerned about the fate of their neighborhood but see this wetland and the shopping center redevelopment, as proposed in the Small Area Plan, as a beacon of hope.

The grading plan is being developed. There are many design issues regarding availability of water and choosing the proper elevations within the wetland. The designers doing the grading plan have met numerous times with Joan Nassauer and City Parks staff.

January 1, 1997

The grading plan has been completed.

We selected Native Landscape Design and Restoration, Ltd to prepare a planting plan for the wetland restoration. They are in the process of preparing that plan. A meeting early in January will be called to iron out any last minute items regarding the planting plan.

March 4, 1997

Received a letter from John Velin requesting some clarification in a few areas of the last work program update. This update will clarify sections A.1.d. and A.3.d. providing more details of the progress to date.

The January meeting was held. There is a desire to make the wetland on the west side of the railroad berm more of a "wetland garden" featuring lots of color and a more formal appearance. Budget concerns will unfortunately limit amenities originally planned for the west side. On the east side of the railroad berm, the wetland will be more "natural" serving a primary purpose as a wildlife habitat.

July 1, 1997

Grading of the wetland was to begin in early May but a potential strike delayed it. The contractor said that he would honor any picket line and so the project was delayed until the labor issues were resolved. Because of that delay, we asked for and received an extension of time to complete the project.

The extension allowed us to rethink the timing of the planting. We now plan to plant the upland areas of the wetland in mid September and the remainder of the wetland in May of next year. We delayed the planting for two reasons: the supply of wetland plants this time of year is very limited and for the past few months there hasn't been much rain. If we wait until fall, there will be a much wider variety of plants and they will have a much better chance of surviving. The wetland plants that will be growing in the water are even more difficult to find in the quantities we need now. Our plan is to enter into a contract with a nursery to grow these plants over the winter so they will be ready for us in May.

The project is currently over budget by about \$86,000. The main reason is the grading. When we wrote the grant, we estimated that it would cost \$81,000 to do site grading. After the grading plan was completed, the engineer estimated the cost to be \$115,000. The low bid, however, came in a just under \$150,000.

We received a loan from the Saint Paul Public Works Sewer Utility so that the project could proceed. Currently, we are seeking sources to repay the loan.

January 1, 1998

The Ramsey-Washington Metro Watershed District provided additional funding to this project to cover the shortfall.

In September, several hundred volunteers planted the upland portion of the wetland. This required a massive amount of coordination. It was decided that we would hire a contractor to plant the remaining wetland plants next spring

June 30, 1998

In May, the remaining wetland plants were planted. This time a contractor was hired to do the planting. It's great to have volunteers helping in the planting because they then have a personal investment in the wetland (especially neighborhood volunteers). It just takes so much time and effort to coordinate it all.

March 28, 2000

A final report was submitted on this project. Lessons learned will be applied to the next phase of the Phalen Wetland Restoration Project.

IV. Statement of Objectives:

A. Design and Engineering: The wetland and landscaping around it will be designed to provide wildlife habitat and demonstrate how such wetlands can filter stormwater while being an important urban amenity. The project will also be designed to achieve biodiversity in an urban wetland restoration. Finally, the design will be compatible to the overall Phalen concept plan.

B. Project Construction: Construction will be closely monitored to achieve the desired results of the design. Excavation will create a wetland and a path.

C. Final Report: The report will summarize our efforts to restore this wetland and will be a resource to anyone wishing to accomplish similar results.

Timeline for Completion of Objectives:

	7/95	1/96	6/96	1/97	6/97	1/98	6/98
Objective A: Design and Engineering	XXXXXXXXXX			XX X			
Objective B: Project Construction					XX X		X
Objective C: Final Report							X

V. Objectives/Outcome:

A. Title of Objective/Outcome: Design and Engineering

A.1 Activity: Preliminary Design

A.1.a. Context within the project: Actually this is the key to the success of the project. Urban wetland areas have been greatly degraded in the last century of urban development. While understanding of the importance and broad public benefit of wetlands and wetland restorations is increasing, wetland restoration in this kind of urban environment is rare. Common wetland restoration practices have generally been inadequate to achieve biodiversity that resembles natural wetlands. This project was done in partnership with the DNR and leading wetland experts we are fortunate to have at the University of Minnesota, including Dr. Joan Nassauer, Univ. Of Minnesota Dept. of Landscape Architecture and Dr. Sue Galatowitsch, Univ. of Minnesota Dept. of Horticulture. The preliminary design showed how this restored wetland was incorporated into an overall plan consistent with the Phalen concept plan.

The goal of the Phalen concept plan is to transform the area from one that is a blighting influence harmful to property values in surrounding neighborhoods into a safe, stable, attractive community center that meets neighborhoods and is an asset to the East Side. To do that the plan includes a package of bold, interrelated actions: to create an urban village with balanced housing options and a commercial presence reconstituted both geographically and in terms of market. It also creates a stronger connection to Lake Phalen and the natural landscape, with a wetland park and public open space system, it adds a significant amenity and value to the area provides access to transit, jobs and job training.

A.1.b. Methods: Common urban storm water management practices involve making sure storm water pipes are large enough and, more recently, providing storm water detention basins to slow the rate of runoff. The Phalen wetland project represents a new and much more ecological approach to urban storm water management. The wetland was designed to filter and clean storm water and at the same time to provide valuable habitat for wildlife and an amenity for the surrounding neighborhood.

A.1.c. Materials:

A.1.d. Budget:

Total Biennial LCMR Budget: \$12,000

LCMR Balance: \$0

Match: \$12,581

Match Balance: \$0

A.1.e. Timeline:

	7/95	1/96	6/96	1/97	6/97
Product #1: Preliminary Design			XXXXXXX		

A.1.f. Workprogram Update:

January 1, 1996

We met regularly during the past six months with the University of Minnesota Department of Landscape Architecture staff. The purpose of those meetings was to give direction and feedback on their design sketches for the Phalen Wetland Restoration Project. It is anticipated that their work will be done by the end of January or by mid February. A problem developed because we didn't keep one of the stakeholders informed enough of our progress. This has set our proposed timeline back about six weeks.

No money has been spent because we do not yet have an agreement with the University of Minnesota. The agreement is being finalized now.

July 1, 1996

The University of Minnesota has completed the preliminary design.

No money has been spent because we still do not have a contract with the University. The hang up is over required language regarding patents. Our pass through agency, the Board of Water and Soil Resources, required us to waive some of our patent rights when we negotiated our contract with them. In our contract with the University, that same language was included. The University is not willing to sign a contract that gives up their right to any patents that might be developed under this project. Stay tuned.

January 1, 1997

The contract language has been resolved and a contract has been signed by all parties.

March 4, 1997

Saint Paul has paid the University for their services. I will now request reimbursement from Matt Moore of the Board of Water and Soil Resources. Section A.1.d. Will be amended after reimbursement.

July 1, 1997

Received reimbursement from Matt Moore of the Board of Water and Soil Resources.

A. Title of Objective/Outcome: Design and Engineering

A.2 Activity: Engineering and Grading Plan

A.2.a. Context within the project: Using the guidelines developed in the preliminary design, engineers prepared design and specifications for grading and site amenities such as paths and lighting.

A.2.b. Methods: This part of the design followed the guidelines developed in

the preliminary design and nationally accepted standards for the design of wetlands which are based on the results of the Nationwide Urban Runoff Program (USEPA, 1983) .

A.2.c. Materials:

A.2.d. Budget:

Total Biennial LCMR Budget: \$0

LCMR Balance: \$0

Match: \$27,686

Match Balance: \$0

A.2.e. Timeline:

	7/95	1/96	6/96	1/97	6/97
Product #1: Plans and Specifications			XXXXX		

A.2.f. Workprogram Update:

January 1, 1996

This phase has not begun. It can only start after the completion of the preliminary design.

July 1, 1996

The design of the grading plan has started. There are many parameters to consider including: availability of ground and surface water, elevation of the water surface, amount of 'bounce' in the water level, ADA requirements for access, safe slopes to the wetland, etc. Our designers meet frequently with Joan Naussauer, Ctiy Parks staff and others to work out those and other details.

January 1, 1997

We have finished the grading plan for the wetland on the west side of the railroad berm.

There is, however, some level of uncertainty regarding grading for the wetland on the east side of the railroad berm. The wisdom at the present time suggest that the actual shape be determined on-site at the time of excavation. This is because we do not have enough information on the soil composition and because the depth of the excavation does not have to be very precise.

July 1, 1997

The grading plan has been completed. Plans have been sent to several agencies as part of their permitting process.

A. Title of Objective/Outcome: Design and Engineering

A.3 Activity: Planting and Maintenance Plan

A.3.a. Context within the project: The proper selection of plant materials

is a key factor in achieving the goal of a biodiverse wetland. It will also enhance the aesthetic appeal that will encourage the development of more wetlands.

A.3.b. Methods: Using the guidelines developed in the preliminary design, plant materials were selected and positioned in the wetland plan. Special consideration was given in selecting plant materials that are compatible in a wetland environment, will coexist with the other plantings, and will enhance wildlife habitat. In addition, a plan was developed to specify how this restored wetland is to be maintained.

A.3.c. Materials:

A.3.d. Budget:

Total Biennial LCMR Budget: \$10,000

LCMR Balance: \$0

Match: \$10,000

Match Balance: \$0

A.3.e. Timeline:

	7/95	1/96	6/96	1/97	6/97	1/98
Product #1: Plans and Specifications			XXXXXXXXXX			

A.3.f. Workprogram Update:

July 1, 1996

We have selected two consultants to meet with. This is highly specialized work and therefore a Request For Proposal was not sent. We will meet with them in early July.

January 1, 1997

We selected Native Landscape Design and Restoration, Ltd. Some work has started. The designer will be consulting with Joan Nassauer and Susan Galatowitsch in selecting the planting materials.

March 4, 1997

Native Landscape Design and Restoration, Ltd. is continuing with their design. Although we have paid them part of their fee, we have not requested reimbursement because we do not have a product yet.

July 1, 1997

The planting plan will be completed soon. All the plants have been identified.

January 1, 1998

The planting plan was completed this summer.

B. Title of Objective/Outcome: Project Construction

B.1 Activity: Site Grading and Construction of Paths

B.1.a. Context within the project: Close inspection by the preliminary design team was made to insure that the site grading and related construction was done according to the detailed plans and specifications. Having the proper slopes to the wetland basin is important to the success of the wetland and to its safety.

B.1.b. Methods: Site grading for the wetland basin was accomplished with earth moving equipment. Traditional construction methods will be employed to construct the bituminous paths.

B.1.c. Materials:

B.1.d. Budget:

Total Biennial LCMR Budget: \$50,000

LCMR Balance: \$0

Match: \$31,000

Match Balance: \$0

B.1.e. Timeline:

	7/95	1/96	6/96	1/97	6/97
Product #1: Graded Site and Paths				XXXXXX	

B.1.f. Workprogram Update:

January 1, 1997

The original plan was to grade the site in the fall of 1996 and then plant a cover crop to stabilize the soil. Because the grading plan was delayed, we could not put together a contract this fall. We are at somewhat of a disadvantage of it since the whole project must be completed by June 30, 1997. However, we feel that there will still be enough time to complete the work next spring.

July 1, 1997

Grading has been completed. The contract, however, came in way over budget. Originally we had estimated grading to cost \$81,000. After it was designed, the engineer's estimate was \$115,000. The low bid was just under \$150,000. We are in the process of seeking additional funding to cover the shortfall. Since it was just completed, the final cost hasn't been determined. We will be requesting reimbursement soon.

January 1, 1998

Received additional funding from the Ramsey-Washington Metro Watershed District to cover the shortfall in the budget for site grading and construction of paths.

B. Title of Objective/Outcome: Project Construction

B.2 Activity: Planting

B.2.a. Context within the project: A contractor experience in landscape ecology were selected to do the planting. This phase was under the close inspection by Dr. Joan Nassauer to insure that it is done correctly.

B.2.b. Methods: The planting was accomplished according to the plans and specifications. Wetland soils were brought in to meet the specifications.

B.2.c. Materials: Many wetland plants will be purchased. The number and type will be determined in Activity A.3.

B.2.d. Budget

Total Biennial LCMR Budget: \$43,000

LCMR Balance: \$0

Match: \$29,000

Match Balance: \$0

B.2.e. Timeline:

	7/95	1/96	6/96	1/97	6/97	1/98	6/98
Product #1: Planting of the Site						X	X

B.2.f. Workprogram Update:

January 1, 1998

In September, over 600 volunteers planted 23,000 plants over several weekends. Coordinating this effort turned out to be a much bigger job than anyone expected, but it did get the community involved. The planting consultant supervised the actual planting.

June 30, 1998

In May, about 24,000 additional plants were planted. This time we decided to hire a contractor to do the planting.

C. Title of Objective/Outcome: Final Report

C.1 Activity: Write final report

C.1.a. Context within the project: The final report will summarize our experiences with this project. It will be a valuable resource to anyone wishing to accomplish the same goals that have been set out in this project. It will note successes as well as failures.

C.1.b. Methods: The final report will draw on the experiences of the people involved in this project.

C.1.c. Materials:

C.1.d. Budget:

Total Biennial LCMR Budget: \$0

LCMR Balance: \$0

Match: \$0

Match Balance: \$0

C.1.e. Timeline:

	6/98	1/99	6/99	1/00	6/00
Product #1: Final Report				XX	

C.1.f. Workprogram Update:

March 28, 2000

Submitted a final report on this and the second phase of the Phalen Wetland Project together. The following is a report for this, the first phase:

Phalen Wetland Restoration Project

ABSTRACT

This project restored a wetland at the south end of Lake Phalen, located about three miles northeast of downtown Saint Paul. The restoration is part of a City approved plan to rejuvenate a blighted neighborhood referred to as Phalen Village. The wetland will be a neighborhood amenity, restoring the site's natural stormwater cleaning function, reducing nonpoint source pollution, enhancing wildlife habitat and storm water detention, expanding our understanding of how to achieve biodiversity in restored wetlands, and providing an environmental education resource.

HISTORY

Phalen Village lies along an old river valley of the St. Croix River, which flowed south from Lake Phalen to the Mississippi River. During the last glaciation, gravels and soils were deposited in the valley and large chunks of ice were left in low areas, forming Lake Phalen and the Phalen Chain of Lakes to the north. The glaciers left a landscape of rolling, well-drained land dotted with lakes, ponds and wetlands that remained on poorly-drained soils deposited in low areas. This series of ponds and wetlands detained and cleaned stormwater, providing fish and wildlife habitat. Today it is a major flyway for migrating waterfowl and songbirds and it is a significant urban open space and recreation resource.

Since the arrival of Europeans around 1850, the Phalen Village area has undergone substantial

change. Development of the railroad just east of Lake Phalen in the later part of the nineteenth century began to cut what is now the center of Phalen Village off from its natural amenities, especially when the railroad was put on a berm to create a level grade across the old valley.

Phalen Shopping Center was built in the early 1960s with the expectation that Highway 212 would be routed close by. Hwy. 212 was never built. Thus, the market it hoped for never showed up. As a result, the center eventually became a vacant and underutilized space, and poor maintenance resulted in a negative image for the neighborhood. The local District Council identified it as a planning issue. Property values were decreasing and long time residents were losing faith in the neighborhood and moving out.

In 1991, a neighborhood task force was established at the request of the District 2 Community Council to recommend strategies to improve the deteriorating condition of the neighborhood south and east of Lake Phalen. The planning process included a broad spectrum of stakeholders and resulted in the adoption of the Phalen Village Small Area Plan. About this time the University of Minnesota Department of Landscape Architecture was contacted. Professor Joan Nassauer and some of her graduate students developed a concept plan. The plan included a neighborhood centered commercial area along Maryland Avenue, a system of open areas and wetlands and a visual connection to Lake Phalen.

Their plan was bold! The wetland project they envisioned would have state and national significance as a model for urban wetland restoration. The project would demonstrate how wetland restoration in a fully developed urban area can provide important environmental benefits such as stormwater cleaning and wildlife habitat and be a valuable urban amenity. The project would have state and national significance as a model to demonstrate how to achieve biodiversity in urban wetland restorations. The project was done in partnership with leading experts at the University of Minnesota and state agencies.

At the same time the Small Area Plan was being developed, the Phalen Chain of Lakes Watershed Comprehensive Natural Resources Plan was being developed by the Ramsey-Washington Metro Watershed District and the Minnesota Department of Natural Resources. Their Plan also calls for restoration of wetlands in the Phalen Village area and for improving the connection between the wetlands and Phalen Regional Park. The Phalen Village Small Area Plan Task Force worked closely with Department of Natural Resources and Watershed District staff, as well as with landscape and design specialists at the University of Minnesota, to develop a conceptual plan for Phalen Village consistent with the natural landscape and the Phalen Chain of Lakes Watershed Plan.

PHASE I RESTORATION

The process of taking the concept plan and designing the first phase of the Phalen Wetland Restoration project began in the summer of 1995. Saint Paul received grants from the Legislative Commission on Minnesota Resources (LCMR), Ramsey-Washington Metro Watershed District, the Minnesota Waterfowl Association and DNR's Reinvest in Minnesota to restore two wetlands, separated by a railroad berm, immediately south of Lake Phalen.

Professor Joan Nassauer did the preliminary design. A team consisting of staff from Saint Paul's Parks, PED and Public Works Departments, the Ramsey-Washington Metro Watershed District and North East Neighborhoods Development Corporation met over several months working with Professor Nassauer to refine the plan. Because the wetland on the west side of the railroad berm is part of the Phalen Regional Park, the team decided to make that wetland more of a "wetland garden" featuring lots of color and a more formal appearance. On the east side of the railroad berm, the wetland would be more "natural", having a primary purpose as a wildlife habitat. The preliminary design was completed at the end of February, 1997.

In April, 1997 the preliminary plan for the wetland restoration was presented to a neighborhood meeting. Approximately 80 to 100 people attended. With the exception of a couple of skeptics, the response was very positive. Those attending were very concerned about the fate of their neighborhood and saw this wetland and the shopping center redevelopment, as proposed in the Small Area Plan, as a beacon of hope.

During the next few months, Saint Paul Public Works engineers developed a grading plan. There were many parameters to consider including: availability of ground and surface water, elevation of the water surface, amount of 'bounce' in the water level, ADA requirements for access, safe slopes to the wetland, etc.. The designers meet frequently with Joan Naussauer, City Parks staff and others to work out those details. There was some level of uncertainty regarding grading for the wetland on the east side of the railroad berm. The wisdom at the time suggested that the actual shape be determined on-site at the time of excavation. This was necessary because there wasn't enough information on soil composition, the precise location of several desirable trees and because the depth of the excavation was not critical. Following completion of the grading plan, Native Landscape Design and Restoration, Ltd prepared a planting plan for the wetland restoration.

The grading contract came in significantly over budget. When we wrote the LCMR grant, we estimated that it would cost \$81,000 to do site grading. After it was designed, the engineer's estimate was \$115,000. The low bid was just under \$150,000. Because of this and other reasons, the project was over budget by about \$86,000. We received a loan from the Saint Paul Public Works Sewer Utility so that the grading contract could be awarded but it was clear that we needed additional funding. We asked the Ramsey-Washington Metro Watershed District for their help, and they agreed.

Grading of the wetland site was scheduled to begin in early May but a potential strike delayed it. The contractor said that he would honor any picket line and so the project was delayed until the labor issues were resolved. Because the delay would cause the project to extend beyond the grant's end date of June 30, we asked LCMR for and received an extension of time to complete the project. The extension afforded us an opportunity to delay the planting until fall. Two major factors influenced our decision. First, we were in a dry spell, thus we would have to make sure the young plants were watered frequently for them to survive. Second, at that time of the year, the supply of wetland plants is very limited. If we waited until fall, there would be a much wider variety of plants and they will have a much better chance of surviving.

In September, 600 to 700 volunteers planted 23,000 plants over several weekends. Coordinating this effort turned out to be a much bigger job than anyone expected, but it did get the community involved. In May, about 24,000 additional plants were planted. This time it was done by the plant supplier.

VI. Evaluation: It will be evaluated on how well the project achieves biodiversity and how it is received by the neighborhood. The project has the potential of encouraging a renewed vitality for this area and setting into motion other parts of the overall plan for this area.

VII. Context Within Field: Although wetland restoration has been attempted in rural areas, attempting this in an urban setting is rare. What is even rarer is achieving biodiversity.

VIII. Budget Context: For the 2 year period ending on June 30, 1995, the City of Saint Paul has funded the development of this grant application. It is estimated that by that date, the City will have spent \$10,000 in developing this project and grant application. The project grew out of a grant funded by the McKnight Foundation to examine an overall concept plan for the Phalen area. Only monies already identified are being budgeted for the 2 year period beginning July 1, 1995.

IX. Dissemination: This project will likely be the subject of a speech given at a conference and/or a published paper.

X. Time: The proposed project will not exceed two years.

XI. Cooperation:

* Professor Joan Nassauer, Dept. of Landscape Architecture, Univ. of Minn.

* Professor Sue Galatowitsch, Dept. of Horticulture, Univ. of Minn.

Both professors will do the preliminary design and develop the design guidelines. They will also preform field inspections and consult with the final design contractors. Their time will be spent approximately as follows:

Design and Engineering: 70%

Project Construction: 15%

Final Report: 15%

It is estimated that the project manager will spend 150 hours on this project.

XII. Reporting Requirements: Semiannual six-month Workprogram update reports will be submitted not later than January 1, 1996, July 1, 1996, January 1, 1997 and a final six-month Workprogram update and final report by June 30, 1997.