1995 PROJECT ABSTRACT
For the Period Ending June 30, 1997
This project was supported by the Minnesota Future Resources Fund.

Title:	Three Rivers Initiative (TRI)
Program Manager:	Patrick Hamilton
Organization:	Science Museum of Minnesota (SMM)
Legal Citation:	M.L. 95, Chpt. 220, Sect. 19, Subd. 6(h)
Appropriation Amount:	$750,000

Statement of Objectives

Using the Mississippi, Minnesota, and St. Croix rivers, TRI produced new exhibits, theater performances, and demonstrations for museum visitors and new outreach programs for schools that emphasize the connections between watersheds and river water quality. High school students that participated in the Projects Club had the opportunity to create their own exhibits about rivers and to put them on display in the Our Minnesota hall.

- TRI uses the three rivers as environmental indicators. Are fish safe for human consumption? What is the state of water quality? Is biodiversity stable or faltering? These questions are used in TRI exhibits and programs to shed light not only on the health of the three rivers but on the well-being of the watersheds that sustain them.

- TRI presents rivers as dynamic ecosystems. TRI exhibits reveal how rivers shape their channels over time. Museum visitors later on in summer 1997 will have the opportunity to use stream tables to directly explore how rivers shape the land. The River Eye boat will be used several times a week to bring current information into the Our Minnesota hall about the status of the Mississippi River in downtown St. Paul.

- TRI uses the three rivers to examine environmental ethics. TRI exhibits and programs reveal how clean the rivers once were and how human activities have degraded water quality. TRI exhibits and programs highlight people and organizations that are working to improve river water quality.

Overall Project Results

TRI developed 3,100 square feet of new river-based exhibits for the Our Minnesota hall. In addition to providing new educational experiences for the hall's 400,000 annual visitors, many TRI exhibits will be part of the future Mississippi River Gallery, which will receive about one million visitors annually when it opens as part of the new Science Museum of Minnesota in late 1999.

The TRI demonstration "Big Fish, Little Fish"will acquaint hundreds of museum visitors annually with the issue of bioaccumulation of mercury in fish. The TRI theater performance "Hooked on the Minnesota" will be the featured fall 1997 program for school groups visiting the museum. Thousands of school students and teachers will learn about the water quality challenges facing the Minnesota River.

High school students participating in the Our Minnesota hall's Projects Club had the chance to learn exhibit development and production skills from museum staff and then develop their own exhibits about the Mississippi, Minnesota, and St. Croix rivers. Collectively called the "River Mall," these exhibits are on long-term display in the Our Minnesota hall.

TRI developed new school outreach programs about rivers that already have reached 34,000 students and teachers. These assembly, residency, and teacher in-service programs are delivered to schools throughout the state.

Project Results Use and Dissemination

Given that the new Science Museum of Minnesota will be overlooking the Mississippi River in downtown St. Paul, the exhibits, demonstrations, theater performances, and school outreach products of TRI are part of the museum's long-range plan to collaborate with the Mississippi National River and Recreation Area in providing a wide range of audiences with access to the best possible information and experiences about the Mississippi River and its watershed.

Date of Report: July 1, 1997

LCMR Final Work Program Update Report

I. Project Title and Project Number:	**Three Rivers Initiative (M3 6)**
Project Manager:	Patrick L. Hamilton
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A. Legal Citation: ML 95, Chp. 220, Art. 19, Sec. 19, Subd. 6(h)
Total Biennial LCMR Appropriation: $750,000
Balance as of July 1, 1997: $0

Appropriation Language: This appropriation is from the future resources fund to the Science Museum of Minnesota to develop exhibits and programs focusing on the Mississippi, Minnesota, and St. Croix rivers.

B. Status of Match Requirement: N/A

II. Project Summary

The environmental future of the Mississippi River in Minnesota is uncertain. Pollution from human activities together with the hydrologic impacts of a lock and dam system may induce major ecological change. The contrast of the seriously polluted Minnesota River and the relatively pristine St. Croix River illustrate how human activities on land affect the health of our rivers.

The Three Rivers Initiative (TRI) will produce new exhibits, laboratory activities, theater performances, and demonstrations for museum visitors and new outreach programs for schools. TRI will highlight how watershed-based scientific inquiry provides insights into how to better manage our rivers. Members of the Our Minnesota Projects Club will play an active role in fashioning TRI components.

Goal 1: TRI will use the three rivers as environmental indicators. Are fish safe for human consumption? What is the state of water quality? Is biodiversity stable or faltering? These questions will shed light not only upon the immediate health of the three rivers but on the well-being of the watersheds that ultimately sustain them.

Goal 2: TRI will present rivers as dynamic ecosystems. The flows of energy and matter in lotic systems is dramatically different from those in lentic systems. TRI will show how terrestrial ecosystems directly and indirectly serve as sources of energy and matter for rivers.

Goal 3: TRI will use the three rivers to examine environmental ethics. TRI will grapple with the questions of what kind of rivers do we really want and what kind of changes may be necessary to realize them.

III. Six Month Work Program Update Summary

Final Work Program Update Report

Grants:
In spring 1996, the Persephone Foundation in Minneapolis committed $30,000 toward the cost of the construction and operation of the River Eye, the boat that currently is being built in the Our Minnesota and which will be used later this summer to bring the sights, smells, objects, and artifacts of the Mississippi River into the Our Minnesota hall.

In spring 1996, Ashland Petroleum committed $40,600 so that the elementary schools in the South Washington County School District could have access to the water education outreach programs produced by the Science Museum under its *H_20 Minnesota, Environmental Exhibits Collaborative*, and *Three Rivers Initiative* LCMR appropriations.

In summer 1996, the Metropolitan Council of the Twin Cities approved the museum's $83,753.52 request to the Twin Cities Water Quality Initiative grant program to develop a couple of additional exhibit components related to TRI and to provide scholarships to selected Twin Cities schools so that they could receive free of charge the museum's day-long Three Rivers school outreach program.

In summer 1996, the Rathmann Family Foundation approved the museum's $10,000 request to supplement the development of TRI exhibits by the Projects Club.

In summer 1996, the St. Paul Water Utility committed $6,184 so that six schools in its service area could receive the museum's day-long Three Rivers school outreach program during the 1996/97 school year.

On June 1, 1997, the Science Museum of Minnesota in collaboration with the Illinois State Museum, the St. Louis Science Center, and the National Center for Supercomputer Applications submitted a grant proposal to the National Science Foundation. Called the "Mississippi RiverWeb® Museum Consortium, this project seeks funding to develop high-performance computer applications that would allow visitors to all three participating museums to use state-of-the-art computer visualization technologies to better comprehend the complex interplay of natural and human forces shaping the Mississippi River Basin.

On June 27, 1997, the Science Museum submitted a grant proposal to the Metropolitan Council's Twin Cities Water Quality Initiative grant program. Called "Mississippi Waterworks," this projects seeks funding to take the public rest rooms in the west building of the present museum and the rest rooms immediately adjacent to the Mississippi River Gallery in the new museum and turn them into working exhibits about water quality, quantity, and non-point source pollution.

A.1. Activity: Window on St. Croix
The Window on the St. Croix exhibit area opened in the Our Minnesota hall in mid July 1996. Additional exhibit components were added in late 1996. From January 1 through June 30, 1997, additional improvements were made to the existing Window on St. Croix exhibit components. Label copy was added to the aquarium to aid museum visitors in identifying the fish species, the GIS program was revised to make it easier for museum visitors to use, additional copy was installed on the zebra mussel diorama, and a small display about aerial photography was added to the large backlighted aerial image of the confluence of the Mississippi and St. Croix rivers.

A.2. Activity: New Demonstration and Theater Performance
The demonstration on the bioaccumulation of mercury in fish called "Big Fish, Little Fish," opened to the public in August 1996. The theater performance, "Hooked on the Minnesota" opened in June 1997. This performance will be a featured auditorium show for museum visitors all summer and then will be the featured auditorium show for school groups in fall 1997.

A.3. Activity: New Exhibits
Planning for the TRI exhibits was incorporated into the larger planning for the future Mississippi River Exhibition Gallery in the new museum. This integration helped to ensure that TRI exhibits have a life both in the current museum and in the new one. The new TRI exhibits have brought about a major reorganization of the Our Minnesota hall from an exhibit hall about land use to one about rivers and watersheds. As part of these changes to the Our Minnesota hall, the museum is building a small research boat that it will use to bring the objects, sights, sounds, and smells of the Mississippi River directly into the Our Minnesota hall. Altogether, TRI created 3,100 square feet of new exhibits about the Mississippi, Minnesota, and St. Croix rivers.

A.4. Activity: Projects Club
Using the theme of a shopping mall, the high school students members of the Projects Club have been involved in a long-term project of producing exhibits about the Mississippi, Minnesota, and St. Croix rivers. The first two river mall exhibits produced by the Projects Club were located near the entrance to the Our Minnesota hall. These exhibits were moved to another part of the Our Minnesota hall in spring 1997 in order to make way for new TRI exhibits. At the same time that the exhibits were being moved, the Projects Club developed a third river exhibit. All three exhibits opened under the collective title of the "River Mall" on March 12, 1997. The River Mall team worked closely with Dianne Anderson from the Adopt a River program with the Department of Natural Resources and with museum staff in graphics, exhibit design and fabrication. Having the opportunity to develop exhibits for the benefit of museum visitors proved to be a good way for the young people in the Projects Club program to learn for themselves about the ecosystems of the Minnesota, Mississippi, and St. Croix rivers.

A.5. Activity: Statewide School Outreach Programs
The Science Museum's incorporation of TRI into its school services programs can be divided into three areas: Museum on the Move, environmental education conferences for teachers, and Big River Journey field trips.

Museum on the Move (MOM) delivers assembly, residency, and teacher in-service programs to schools throughout Minnesota. As its part of TRI, MOM developed a new assembly and residency and in-service teacher resources about rivers. A total of 34,000 students and teachers have been reached by these new river programs in the last two years.

Since 1994, the Science Museum has offered an annual day-long environmental education conference just for K-12 educators. The museum held *Confluences: An Environmental Conference for K-12 Educators on Water* on Saturday, March 23, 1996. 40 teachers attended the day-long event. The museum held *Rivers: An Environmental Conference for K-12 Educators* on Saturday, November 16, 1996. 74 teachers attended the day-long event.

Big River Journey field trips are collaborations between educators from the Science Museum, Mississippi National River and Recreation Area, the Minnesota Department of Natural Resources and the Minnesota Valley National Wildlife Refuge to deliver an interdisciplinary river education experience to students and teachers taking excursions on the boats of the Paddleford Packboat Company. The first series of Big River Journeys took place in spring 1996 and served nearly 900 students and teachers. The second series took place in spring 1997 and involved nearly 1,100 students and teachers.

IV. Statement of Objectives

A. Three Rivers Initiative at SMM

Contrasting and comparing their differing environmental stories, TRI will use the Mississippi, Minnesota, and St. Croix rivers to develop new exhibits, theater performances, demonstrations, and laboratory activities for the Our Minnesota hall, a permanent exhibit that interprets the changing environment of our state.

B. Three Rivers Initiative Outreach

SMM's school outreach program, Museum on the Move, will produce a new 50-minute assembly program, classroom residency program, and in-service teacher training program (Science SLICES) that uses the principles of lotic ecology to explain how rivers and streams are different from lakes and how human activities on land influence the health of rivers.

TIMELINE FOR COMPLETION OF OBJECTIVES	FISCAL YEAR 1995-96												FISCAL YEAR 1996-97											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Objective A. Three Rivers Initiative at SMM												X	X	X	X	X	X	X	X	X	X	X	X	X
Objective B. Three Rivers Initiative Outreach										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

V. Objectives/Outcomes

A. Three Rivers Initiative at SMM

A.1. Activity: Window on St. Croix

A.1.a. Context Within the Project: Window on St. Croix (WoSC) will take place in a dedicated window in the Our Minnesota laboratory. Through a combination of exhibit components and hands-on activities, this area will use the St. Croix River to acquaint museum visitors with watershed-based scientific inquiry and how it can aid in the management of a river. WoSC will be a long-term addition to the Our Minnesota Science Hall, where approximately 400,000 people will encounter it every year.

A.1.b. Methods: WoSC will begin with front-end evaluation intended to inform the planning team about the public's current knowledge and understanding of the St. Croix River. Through the use of visitor surveys, front-end evaluation will help insure that the information about scientific research facilitated by the St. Croix Watershed Research Station (SCWRS) is placed in a context that most museum visitors can grasp. With the help of front-end evaluation, the planning team will prepare project goals and outcomes that define the specific components and how they will relate to one another. An extended period of formative evaluation in which prototypes of exhibits and activities are tested with the public will take place before fabrication of the final components.

A.1.c. Materials:
Equipment:
WoSC stream aquarium: $25,000
WoSC weather station: 11,000

Environmental stations at SMM and at SCWRS: $0
It was decided that the development of a multimedia computer program would be a more effective way of conveying the range of scientific research that occurs at the SCWRS than using raw environmental data. The environmental stations, therefore, were replaced by a program that allows museum visitors to select from a wide range of computerized slide shows and videos in which scientists in person describe the purpose of their research.
Two computers & phone lines for data & image
transfer from SCWRS to WoSC: $0
The need for dedicated phone lines for data and image transfer from SCWRS to WoSC has been eliminated by the museum having recently gained access to the Internet.

Materials:
WoSC exhibits and laboratory activities:..... 20,000
(standard construction materials & lab supplies)

TRI proposes purchase of this equipment rather than renting because Window on St. Croix will be a permanent addition to the Our Minnesota Hall and will continue to operate long after the end of the biennium. All the equipment purchased for Window on St. Croix will continue to be used for the same purpose through its useful life. If the use changes, SMM will pay back to the appropriate Fund or account an amount equal to either the cash sale price SMM receives from its sales or a residual value to be negotiated with the Director if SMM chooses not to sell it.

A.1.d. Budget
Total Biennial LCMR Budget: $158,000
Balance as of July 1, 1997: .....$(3,512)
Match: .....N/A

A.1.e. TIMELINE	FISCAL YEAR 1995-96												FISCAL YEAR 1996-97											
WINDOW ON ST. CROIX	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**
Goals and Outcomes Key experiences for WoSC.	X	X																						
Front-End Evaluation Study of the knowledge, attitudes, beliefs of SMM visitors that shape how they react to WoSC components.	X	X																						
Preliminary Component List A draft list of the exhibit components proposed for WoSC.		X	X	X	X																			
Prototyping & Formative Evaluation Prototyping & testing of WoSC exhibit & program ideas prior to final fabrication.		X	X	X	X																			
Final Component List Final list of WoSC exhibit & program components						X																		
Script and Construction Documents All WoSC copy & construction drawings							X	X	X															
Fabrication of WoSC										X	X													
WoSC Opens to the Public												X												
Summative Evaluation and Modifications Evaluation of public reactions to exhibits & ongoing refinement of living systems displays													X	X	X	X	X	X	X	X	X	X	X	X

A.1.f. Work Program Update:

Final Work Program Update Report for Window on the St. Croix

A front-end evaluation survey was designed, administered, and analyzed in the months of May, June, and July 1995. A document outlining the goals and outcomes for Window on St. Croix and a preliminary component list was completed in August 1995. Formative evaluation and prototyping of Window on St. Croix components took place during spring 1996 as copy, graphic elements, and exhibit materials were tested for their appropriateness with museum visitors. The final component list was developed during February and development of final components (gathering of information, maps, images, video) took place throughout the spring. Content experts from the National Park Service and the Minnesota-Wisconsin Boundary Area Commission in particular were quite helpful in advising on the project.

The exhibit script and construction documents were completed in May and June and fabrication of exhibit components began in June 1996. Graphic design parameters were created and tested with visitors for comprehension in April and May, and production of graphics also began in June 1996. Window on the St. Croix components were installed in the Our Minnesota Science Hall in July 1996. Additional components were put on display in October through December 1996 and additional improvements took place from January 1 through June 30, 1997. The following exhibit components are now on display in the Window on St. Croix exhibit area in the Our Minnesota hall:

The St. Croix River Aquarium -- Museum visitors can observe living specimens of several species of fish (paddlefish, blue suckers, and river sturgeon) and mussels that reside in the river.

Changing Ecology Display Case -- In this case, museum visitors can read excerpts from old field journals and view specimens collected decades ago and develop a realization that the ecology of the St. Croix watershed has changed dramatically since the turn of the century.

Geographic Information Computer Station -- At this station, museum visitors can experiment with overlaying various land use databases for the St. Croix River watershed as well as viewing aerial photographs of the watershed at many different scales.

Zebra Mussel Video -- Museum visitors can sit down in a small boat and watch a short videotape that shows how scuba divers working for the Minnesota Department of Natural Resources, National Park Service, and the US Fish and Wildlife Service search for signs of zebra mussels in Lake St. Croix.

Zebra Mussel Diorama -- Using actual zebra mussel-encrusted objects from Lake Pepin, this diorama allows museum visitors to see beneath the surface of the water and appreciate how dramatically zebra mussels can change the ecology of a river or lake and why so much effort is being made to stop their spread into the St. Croix River (Note -- this diorama was constructed in the Our Minnesota Lab instead of the shop. This much more visible location permitted museum visitors to see how dioramas are made and also encouraged additional questions and discussions about zebra mussels.)

Recreational Boat Use -- Museum visitors can look at a large backlighted aerial photograph that shows the intensive recreational boat activity that the lower St. Croix River often experiences in the summer.

Confluence of the Mississippi and St. Croix Rivers -- This large backlighted aerial photograph of the confluence of these two rivers allows museum visitors to see the dramatic differences in water quality between these two rivers.

St. Croix Watershed Research Station Computer Station -- This multimedia computer program allow museum visitors to explore the wide range of scientific research that occurs at the field station.

A.2. Activity: New Demonstration and Theater Performance

A.2.a. Context Within the Project: The new demonstration and theater performance will reinforce the goals of TRI. The demonstration will address a topic that illustrates the connections between terrestrial and aquatic ecosystems, such as how through chemical and biological processes,. contaminants can accumulate as they move up the food chain. The theater performance will be about pollution of the Minnesota River. The new demonstration and theater performance will continue to be performed well after the end of the biennium. The demonstration will be conducted about 50 times per year and will be seen by about 1,500 people per year. The theater performance will be performed about 20 times per year and will be seen by about 600 people per year.

A.2.b. Methods: SMM will hire a playwright to develop a script for a theater piece which will reflect the goals and objectives established for a performance about the Minnesota River. The theater performance will involve interested youth from the Our Minnesota Projects Club. This will be the first time that SMM has used youth in its theater productions, so development time will be longer than usual with the play opening in June 1997. The demonstration will begin by researching the topic and collecting front-end evaluation information from visitors through the use of surveys and other means about visitor knowledge and interest in the topic. The research and evaluation work will be followed by the writing of a script. After the script is completed, work will begin on developing and fabricating the props. Once the props are ready, presenters will be trained and the demonstration will open to the public.

A.2.c. Materials:
Equipment:
None anticipated

Materials:
Theater performance materials:..... $9,000
(costumes, props, sets)
Demonstration materials: 3,000
(props and sets)

The vast majority of the theater and demonstration materials will have to be custom produced by the museum's staff because they will not be commercially available. These programs will become part of the museum repertory of programs, and will be offered to the public long after the end of the biennium.

A.2.d. Budget
Total Biennial LCMR Budget: $57,000
Balance as of July 1, 1997: .....$(2,473)
Match: .....N/A

A.2.e. TIMELINE	FISCAL YEAR 1995-96												FISCAL YEAR 1996-97										
DEMONSTRATION & THEATER	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
New Theater Performance																								
Goals and Outcomes Key experiences proposed for the theater piece						X																		
Playwright Prepares Script													X	X	X	X	X	X						
Cast Selection																			X					
Rehearsal																				X	X	X	X	
Production of Set, Props, Costumes																				X	X	X	X	
New Theater Piece Opens																								X
New Demonstration																								
Goals and Outcomes List of key experiences expected for the demonstration	X	X	X																					
Research & Front-End Evaluation Research topic & conduct research into prior knowledge, attitudes, beliefs of SMM visitors.	X	X	X																					
Send Script Out for Review				X	X																			
Finalize Script						X																		
Prototype & Construct Props							X	X	X	X														
Train Presenters										X	X													
Demonstration Opens to the Public												X												
Summative Evaluation Evaluation of public response to theater piece & demonstration												X	X	X	X	X	X	X	X	X	X	X	X	X

A.2.f. Work Program Update:

Final Work Program Update Report for New Demonstration and Theater Performance

Writer Judy McGuire was hired to write a demonstration on the subject of the bioaccumulation of mercury in fall 1995. The script was approved in spring 1996. Readings of the demonstration by the actors and the designing of props took place in early summer 1996. The demonstration *Little Fish, Big Fish* opened to the public in the Our Minnesota hall in August 1996. This demonstration focuses on how even very tiny amounts of mercury can become greatly concentrated through the processes of bioaccumulation.

Three playwrights were asked to submit ideas by January 2, 1996 for a theater piece focusing on the people and stories of the Minnesota River. The museum contracted with Jamison Mahto, an outside playwright, to write a script for a theater piece. The development of an acceptable script took longer than anticipated and eventually was turned over to Anne Welsbacher (a museum employee who wrote the theater piece *Blowing With the Wind*). The 30-minute-long theater performance called *Hooked on the Minnesota* opened in the museum's east building auditorium on Saturday, June 21. It will be performed Thursday through Saturday at 2:00 p.m. through Labor Day. From October 1 through December 12 and from January 5 through March 20, "Hooked on the Minnesota" will be the featured auditorium program for visiting school groups and it is anticipated that about 3,000 students and teachers will see the performance during fall, winter, and spring 1997-98.

A.3. Activity: New Exhibits

A.3.a. Context Within the Project: New exhibits for the Our Minnesota hall will be a highly visible portion of TRI. About 400,000 people every year will see these exhibits that use the Mississippi, Minnesota, and St. Croix rivers to illustrate river ecology and river-watershed interactions. These new exhibits will be a part of the permanent Our Minnesota and will be on display indefinitely.

A.3.b. Methods: Exhibit development will begin with the establishment of draft goals and objectives. Front-end evaluation, through the use of visitor surveys and other data-gathering means, then will be used to inform the planning team about the public's current knowledge and understanding of TRI goals. This information will help insure that the information of the eventual exhibits is at a level that most museum visitors can grasp. Following front-end evaluation, the exhibit planning team will prepare a draft component list. An extended period of formative evaluation in which prototypes of exhibits and activities are tested with the public then will take place. Formative evaluation then will be followed by the preparation of the script and construction documents that will guide the fabrication of the final components.

The River Eye Boat: The museum amended its work program so that $30,000 in Three Rivers Initiative funds can be used to help build a boat intended to link the Our Minnesota Hall to the Mississippi River. The Persephone Foundation in Minneapolis has committed $30,000 to this project.

The River Eye is a 24-foot-long boat that will be operated by museum staff and volunteers. It will operate primarily on the Mississippi River in St. Paul between Lock and Dam #1 and Pigs Eye Lake. Museum crews will take the boat out several times a week to collect water and sediment samples, record interesting video and audio, and obtain engaging phenological evidence. These materials then will be presented to museum visitors in one of the windows in the Our Minnesota Hall Lab that will be called *Window on the Mississippi.*

The Our Minnesota hall cannot bring its 400,000 annual visitors to the Mississippi River, so the sights, sounds, and objects collected by the River Eye boat is a means of making the river as real an experience as possible for the visitors to the Our Minnesota hall.

A.3.c. Materials:

Equipment:

Unknown at this early date; will be specified clearly when the final component list is completed.

Materials:

Exhibit fabrication materials:..... $30,000
Standard construction materials -- Plexiglas, lumber, etc.

Budget for the River Eye Boat:

Line Items:	**Amount**	**Proposed Source of Funds**
Labor		
Shop Labor	$10,000	Persephone Fnd.
Exhibit Developers	4,850	Persephone Fnd.
Master Boat Builder	15,000	TRI
Materials and Services		
Finishing Hardware:	1,575	TRI
Motor and Associated Equipment	8,300	TRI
Navigation Equipment	3,265	TRI
Trailer	1,700	TRI
Lumber	4,885	Persephone Fnd.
Miscellaneous Supplies	775	Persephone Fnd.
Fuel	3,200	Persephone Fnd.
Mooring	1,500	Persephone Fnd.
Maintenance	2,250	Persephone Fnd.
Engine Servicing	200	Persephone Fnd.
Navigational/Electronics Maintenance	500	Persephone Fnd.
Engine Winterizing	250	Persephone Fnd.
Winter Storage	1,000	Persephone Fnd.
Annual Painting	590	Persephone Fnd.
TRI	$29,840	
Persephone Fnd.	30,000	
Total:	*$59,840*	

The exhibits will be custom produced by the museum's staff because they will not be commercially available. The exhibits will be on display in Our Minnesota indefinitely. . All the equipment purchased for TRI exhibits will continue to be used for the same purpose through its useful life. If the use changes, SMM will pay back to the appropriate Fund or account an amount equal to either the cash sale price SMM receives from its sales or a residual value to be negotiated with the Director if SMM chooses not to sell it.

A.3.d. Budget

Total Biennial LCMR Budget: $286,000
Balance as of July 1, 1997: .....$(40,626)
Match: .....N/A

A.3.e. TIMELINE	FISCAL YEAR 1995-96												FISCAL YEAR 1996-97											
NEW EXHIBITS	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**
Goals and Outcomes A compilation of key experiences proposed for the TRI exhibits	X	X	X	X	X	X																		
Front-End Evaluation Study of the knowledge, attitudes, beliefs of SMM visitors that can shape how they respond to TRI components.	X	X	X	X	X	X																		
Preliminary Component List A draft list of the exhibit components proposed for TRI							X	X																
Prototyping & Formative Evaluation Testing of exhibit & program ideas prior to final fabrication.																	X	X	X	X				
Final Component List Final list of TRI exhibit elements																				X				
Script and Construction Documents All TRI copy & construction drawings																					X	X		
Fabrication of TRI																					X	X		
TRI Exhibits Open to the Public																							X	

A.3.f. Work Program Update:

Final Work Program Update Report for New Exhibits

Goals and outcomes for exhibits about the Minnesota and Mississippi rivers were completed in December 1995. Front-end evaluation took place in January 1996. Work on a preliminary component list was completed in spring 1996. However, prototyping and formative evaluation were pushed back toward the end of 1996 in order to accommodate the planning for the future Mississippi River Exhibit Gallery, which will open in the new museum. Intensive planning of the Mississippi Gallery will began in fall 1996.

From January through June 1997, the Our Minnesota hall underwent the biggest transformation it has experienced since 1988. The exhibits produced under the auspices of the Three Rivers Initiative changed the hall from one that focused on land use to one that concentrates on watersheds and rivers. The new exhibit and program areas outlined below not only provide museum visitors with the opportunity to explore an almost entirely new exhibit hall, they also will permit the museum to take its first major step toward the development of a permanent hall on the Mississippi River and its watershed for visitors to the new museum.

New Orientation -- New signposts and an introduction have been prepared for the Our Minnesota hall in order to acquaint museum visitors with the new watershed orientation of the exhibit hall.

The Big Map -- The old big map based on land use has been replaced with a new big map that emphasizes the major watersheds in Minnesota.

Watersheds -- Several new exhibit components now are on display that illustrate the concept of watersheds to museum visitors. The roof of a house is used to help get across the concept of what a watershed is. Two graphic panels further elaborate on watersheds -- one highlights the major watersheds in Minnesota and the other shows the entire watershed of the Mississippi River.

River Works -- The river geomorphology sculpture created by Chicago artist Mike Paha has been installed. Hands-on stream tables with explanatory graphics will be prototyped and installed around the sculpture this summer using funds made available by the National Park Service.

The Minnesota River -- Graphic panels located around the sides of a historic plow tell how the landscape of the Minnesota River watershed changed in response to the development of agriculture. A collection of freshwater mussel shells are used to reveal how water quality can be inferred from the presence or absence of these animals. Graphic displays describe several initiatives underway in the watershed of the Minnesota River to improve the water quality of this waterway.

The River Eye Boat -- The River Eye boat is nearing completion. A rigger will move the boat out of the museum on July 9. In July, final outfitting of the boat will be done on Harriet Island and volunteer boat crew training will take place. The boat will begin its regular rounds of patrolling the Mississippi River in early August.

The Mississippi River -- New exhibits encourage museum visitors to learn about the Mississippi River through the experiences of individuals who have unique relationships with the river. Museum visitors first are introduced to the river by watching on-the-street interviews with citizens who have are asked by an off-camera interviewer about the desirability of drinking the Mississippi River, swimming in the river, and fishing in the river. Through stories about a man who is a fishing guide on the Mississippi, museum visitors discover that the Mississippi River in the Twin Cities area is an excellent walleye fishery. Through stories about a couple living on the river, museum visitors realize that the river is home to a small community of people who actually live on the river. Through stories about a performance artist in the process of swimming the entire length of the river, museum learn about the water quality of the Mississippi. Through stories about high school students helping to monitor the health of the Mississippi River, museum visitors appreciate that everyone can help play a role in protecting the river.

A.4. Activity: Projects Club

A.4.a. Context Within the Project: The Projects Club is a group of high school students who come to the Our Minnesota hall after school, on weekends, and during the summer to work on new and existing exhibits and programs. Some Projects Club members will be directly involved in the planning, development, and implementation of Window on St. Croix and TRI exhibits and programs. Other Projects Club members will develop independent TRI projects for the Our Minnesota hall. The Projects Club will involve about forty students per year. The products created by Projects Club members will be displayed in Our Minnesota, which is visited by about 400,000 people per year. The Projects Club currently is supported by funding from NSP and LCMR through the Green Street® appropriation. The Projects Club is supported wholly through restricted funds. Continuation of funding through TRI is necessary for the continued operation of the Projects Club.

A.4.b. Methods: Members of the Projects Club will be recruited to serve on the planning teams for Window on St. Croix and TRI exhibits and programs. As members of the planning teams, they will be expected to undertake a wide range of duties -- e.g. conduct research, perform evaluation work, do copy writing, assist with fabrication work. Other Projects Club members will develop individual TRI projects or collaborate with a group of Projects Club colleagues to create TRI projects for Our Minnesota.

A.4.c. Materials:
Equipment:
No equipment needs anticipated at this time

Materials:
Project Club supplies: $16,000
Materials for tabletop exhibits and programs (e.g. graphic supplies, foamcore, lab kits) and materials for team-building activities (e.g. transportation to site visits, refreshments)

A.4.d. Budget
Total Biennial LCMR Budget: $177,000
Balance as of July 1, 1996: $36,921
Match: .....N/A

A.4.e. TIMELINE Four times during the biennium, the Projects Club will go through the steps in exhibit and program development to create new TRI products for Our Minnesota	**FISCAL YEAR 1995-96**												**FISCAL YEAR 1996-97**											
PROJECTS CLUB	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**
First Set of Projects	X	X	X	X	X	X																		
Second Set of Projects							X	X	X	X	X	X												
Third Set of Projects													X	X	X	X	X	X						
Fourth Set of Projects																			X	X	X	X	X	X

A.4.f. Work Program Update:

Final Work Program Update Report for Projects Club

Projects Club assisted with the designing, administering, and interpreting the results of the front-end evaluation for the Window on St. Croix project. Projects Club members spent summer and fall 1996 going through the development steps of creating an exhibit about the Mississippi River. Projects Club members did all of the copywriting and construction. The 200-square-foot exhibit, *Happy Sails Map and Travel,* opened on January 2,1996. Evaluation of the exhibit then took place during the months of February and March.

In March 1996, interviews began for selecting Projects Club members for summer internships with scientists at the St. Croix Watershed Research Station (SCWRS) as part of the *Window on St. Croix* project. In summer 1996, the student interns helped SCWRS scientists excavate a bison kill site at the station, conduct research on mercury deposition, document a Global Positioning Satellite seminar at the SCWRS, conduct a biological survey of Spring Creek and document a ground-dwelling bee site at the SCWRS.

In April 1996, the museum wrote a successful grant to the Rathmann Family Foundation for $10,000 to support the Projects Club's next exhibit. During fall and winter 1996, Projects Club members participated in brainstorming, field trips, and research on river (Minnesota, Mississippi, St. Croix) plants and animals. Field trips included: the St. Croix River, river cleanups, studying the Lilydale area, Ft. Snelling State Park, Lock and Dam #1, Minnesota Valley Wildlife Refuge, Itasca State Park, Underwater World, Minnesota Zoo, and Prescott and Taylors Falls, WI. Projects Club members worked with Dianne Anderson of the DNR's Adopt-A-River program.

During fall 1996, Projects Club members also prepared a model for their exhibit. This model then was greatly modified in spring 1997 because the large changes planned for the Our Minnesota hall due to new Three Rivers exhibits required that the Projects Club exhibits be installed in a new location. Two previous river exhibits produced by Projects Club members were relocated to another part of the Our Minnesota hall to make way for new TRI exhibits. At the same time that the exhibits were being moved, Projects Club members were developing a third river exhibit. All three exhibits opened under the collective title of the "River Mall" on March 12.

B. Three Rivers Initiative Outreach

B.1. Activity: Statewide School Outreach Programs

B.1.a. Context Within the Project: Based on the three goals of TRI, the museum's school outreach program (Museum on the Move) will develop a set of school programs for presentation to schools throughout Minnesota. The development of new school outreach products is dependent on restricted funds. Once the products are developed, they will become part of SMM's assemblage of school outreach resources and will be available for use by schools long after the end of the biennium. About 40,000 students and teachers per year will experience one or more the TRI school outreach products.

B.1.b. Methods: In the development of all TRI school outreach products, Museum on the Move will undertake the following steps:

- Establish draft goals and outcomes
- Use teacher interviews and SMM staff to review the draft goals and outcomes
- Revise the goals and outcomes
- Use teacher interviews and SMM review the goals and outcomes once more
- Create final program plan
- Fabricate components for the program
- Train program presenters

B.1.c. Materials:

Equipment:

No equipment needs anticipated.

Materials:

A wide variety of materials (e.g. PVC pipe, rip-stop nylon, Styrofoam, etc.) will be used to create the props and sets for the programs.

Assembly program: $10,000
Residency program: 10,000
Science SLICES: 2,500

B.1.d. Budget

Total Biennial LCMR Budget: $72,000
Balance as of July 1, 1997: $9,690
Match: .....N/A

B.1.e. TIMELINE	FISCAL YEAR 1995-96												FISCAL YEAR 1996-97											
TRI OUTREACH PROGRAMS	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
TRI School Assembly Program																								
Goals & Objectives List of the key experiences	X																							
Draft Storyboard & Sketches Preliminary layout of the program		X	X																					
External & Internal Review of Drafts Teachers & SMM staff examine ideas and concepts in the draft layout.			X	X																				
Prototyping & Formative Evaluation Prototyping of possible program elements with feedback from prospective audiences			X	X																				
External & Internal Review of Draft Program Teachers & SMM staff make final comments on the program.				X																				
Fabrication of Assembly Program Props are built.				X	X																			
Training of Presenters						X	X																	
TRI Assembly Program Opens								X																

B.1.e. TIMELINE	FISCAL YEAR 1995-96												FISCAL YEAR 1996-97											
TRI OUTREACH PROGRAMS, CONT.	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
TRI School Residency Program																								
Goals & Objectives List of the key experiences		X																						
Draft Storyboard & Sketches Preliminary layout of the program		X	X	X	X	X																		
External & Internal Review of Drafts Teachers & SMM staff examine ideas and concepts in the draft layout.							X	X																
Prototyping & Formative Evaluation Prototyping of program elements with feedback from prospective audiences								X	X	X	X													
External & Internal Review of Draft Program Teachers & SMM staff make final comments on the program.												X												
Fabrication of Residency Program Props are built.													X	X										
Training of Presenters															X	X								
TRI Residency Program Opens																X								
TRI Science SLICES																								
Goals & Objectives List of the key experiences		X																						
Draft Storyboard & Sketches Preliminary layout of the program		X	X	X																				
External & Internal Review of Drafts Teachers & SMM staff examine ideas and concepts in the draft layout.			X	X	X																			

B.1.e. TIMELINE	FISCAL YEAR 1995-96												FISCAL YEAR 1996-97											
TRI OUTREACH PROGRAMS, CONT.	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Prototyping & Formative Evaluation Prototyping of program elements with feedback from prospective audiences					X	X																		
External & Internal Review of Draft Program Teachers & SMM staff make final comments on the program.					X	X																		
Production of Activity Packet Props are built.						X	X																	
Training of Presenters							X																	
TRI Science SLICES Opens								X																

B.1.f. Work Program Update:

Final Work Program Update Report for Statewide School Outreach Programs

Museum on the Move School Outreach Programs:

Goals and objectives have been established for the Three Rivers assembly program in fall 1995. The script for the assembly program was finished in late December. The assembly program became available to schools in February, 1996. The activities for the Science SLICES were selected in early 1996 and were finalized in June 1996. Work on the residency was postponed until summer 1996 when time was available for intensive program development and when residency developers could learn from the reactions of teachers and students to the assembly and SLICES during spring 1996. The residency program was completed in early 1997.

The museum wrote a grant to the Metropolitan Council's *Twin Cities Water Quality Initiative* in May 1996 and learned later in the summer that it had been approved. $46,811.92 of the requested $83,753.52 will be used to provide the day-long *Three Rivers Outreach Program* free to selected schools. This day-long program consists of one performance of the 50-minute large-group *Three Rivers* assembly program, six 50-minute *Three Rivers* classroom residencies, and day-long access to the *Three Rivers Teachers Resource Station. 12* Twin Cities metropolitan area schools will receive this program in fiscal year 1996/97, 15 in fiscal year 1997/98, and 18 in fiscal year 1998/99. In addition, the St. Paul Water Utility agreed to commit $6,184 so that six additional schools in its service area could receive the *Three Rivers Outreach Program* during the 1996/97 academic year.

In late 1996, the Science Museum, Ashland Petroleum, and the Minnesota Pollution Control Agency concluded negotiations that created a project that provides access to the museum's water education outreach programs for the 7,000 students and teachers in the eleven elementary schools in the South Washington County School District. This district includes the communities of Newport, St. Paul Park, Woodbury, and Cottage Grove.

The *Community Environmental Project* (CEP) was part of the result of a legal settlement of the MPCA and Washington County against Ashland Petroleum. The museum received $40,600 to provide the water education resources it developed under LCMR projects *H_2O Minnesota, Environmental Exhibits Collaborative*, and the *Three Rivers Initiative* to the teachers, students, and families in the South Washington School District during the 1995-96 and 1996-97 school years.

The CEP will provide every elementary student with a hands-on environmental experience in their school building. To create a long term impact, teacher education programs will also be incorporated into this project. Two half-day workshops will introduce a group of lead teachers from each school to the Water! residency class and to the Water! Museum Trunk. Each school will receive two trunks for use in their school. *Family Nights* hosted by each school will extend the impact of this program beyond the school walls. Each school will invite students and their families to attend the museum's TRI assembly program. Activity stations will allow families to explore environmental questions before and after the assembly.

Three Rivers Assembly Programs, January 1 - June 30, 1996:

School	*Number of Students*
Wilson Elementary, Anoka	701
St. Francis Jr. High, St. Francis	270
Minnetonka West, Excelsior	540
Rush City High, Rush City	130
Hilltop Elementary, Inver Grove Heights	40
Hayfield High, Hayfield	330
Winnebago, Winnebago	343
Riverview, Brooklyn Park	546
Excelsior, Excelsior	450
Alice Smith, Hopkins	540
Dowling Elementary, Minneapolis	N/A
Oak Knoll Lutheran, Minnetonka	60
West Jr. High, Minnetonka	160
Nevis School, Nevis	350
Isanti Elementary, Isanti	700
William M. Kelly, Silver Bay	580
John A. Johnson, Two Harbors	700
Shetek Lutheran, Slayton	300
Longfellow, Rochester	216
Pinewood, Rochester	805
Christ Lutheran, North St. Paul	175
Richardson, North St. Paul	275
Oklee Public School, Oklee	280
Redwood Valley, Redwood Falls	450
Sibley Elementary, Northfield	N/A
Five Hawks, Prior Lake	600
Ordean Middle, Duluth	800
Munger School, Proctor	138
Caribou Lake, Saginaw	162
St. Mary's, St. Cloud	230
Lincoln Elementary, Owatonna	800
Deb Sauke, Elgin	325
Zumbrota-Mazeppa, Mazeppa	112
St. Stan's Middle, Winona	380
Total	*12,488*

Three Rivers Assembly Programs, July 1 - December 31, 1996:

Location	*Number of Participants*
Brown County Fairgrounds, New Ulm	130
Expo II, St. Paul	400
Comfrey Elementary, Comfrey	75
Hanover Elementary, Hanover	470
Sibley Elementary, Northfield	600
Jefferson Elementary, St. Cloud	360
Prosperity Elementary, St. Paul	240
Total	*2,275*

Three Rivers Assembly Programs, January 1 - June 30, 1997:

Location	*Number of Participants*
Balaton School, Balaton	300
St. Francis Jr. High, St. Francis	300
Grygla Elementary, Grygla	250
Bemidji Middle School, Bemidji	440
Blackduck High, Blackduck	200
Lake Hanska, Hanska	476
Bagley Elementary, Bagley	420
Hilltop Elementary, Inver Grove Heights	300
Runestone, Alexandria	500
Pine Island, Pine Island	725
Windom Open, Minneapolis	450
Jefferson Elementary, Willmar	302
Willmar Jr. High, Willmar	150
Kennedy Elementary, Willmar	1,030
Roosevelt, Willmar	600
Prairie Wood, New London	750
Dover-Eyota, Eyota	535
Franklin Middle School, Thief River Falls	185
Osceola Middle School, Osceola	550
Chokio-Alberta, Chokio	135
Zumbrota-Mazeppa, Mazeppa	90
Valley Crossing, Woodbury	500
Total for January 1 - June 30, 1997:	*9,188*

Three Rivers Residency Programs, January 1 - June 30, 1997:

Location	*Number of Participants*
Jefferson Elementary, Red Wing	284
Bluff Creek Elementary, Chanhassen	260
Handke Magnet School, Elk River	400
Hancock Elementary, Red Wing	150
McKinley Elementary, Owatonna	685
Total:	*1,779*

Day-Long Three Rivers School Outreach Tour, January 1 - June 30, 1997:

Location	*Number of Participants*
Expo Elementary, St. Paul	180
Farnsworth Magnet, St. Paul	180
Daytons Bluff Elementary, St. Paul	140
Phalen Lake Elementary, St. Paul	240
Tri District School, Maplewood	150
Parkview Center, Roseville	156
Webster Open School, Minneapolis	180
Central Park, Roseville	180
Parkway Elementary, St. Paul	180
St. Jerome School, Maplewood	108
Lucy Craft Laney, Minneapolis	100
Breck School, Minneapolis	80
Dowling Urban, Minneapolis	175
Highland Catholic, St. Paul	150
Bryn Mawr, Minneapolis	190
St. Helena Catholic, Minneapolis	85
Holy Childhood, St. Paul	70
Total:	*2,544*

Three Rivers Family Events, January 1 - June 30, 1997:

Location	*Number of Participants*
Cargill Water Fair 97	150
Rainbow Foods	5,000
Total:	*5,150*

Community Environmental Project Family Nights, October 1 - December 31, 1996

Location	*Number of Participants*
Crestview Elementary, Cottage Grove	110
Pullman Elementary, St. Paul	40
Hillside Elementary, Cottage Grove	120
Woodbury Elementary, Woodbury	150
Royal Oaks Elementary, Woodbury	170
Total	*590*

Big River Journey Field Trips:

Educators from the Science Museum, Mississippi National River and Recreation Area (MNRRA), and the Minnesota Department of Natural Resources collaborated to deliver nine and ten Big River Journey Field Trips respectively to school groups taking trips aboard boats of the Jonathan Padelford Packetboat Company. The floating classroom project involved 31 teachers and 830 students from 10 schools in the Twin Cities area in 1996 and 31 teachers and 1030 students from 12 schools in Twin Cities area in 1997. Students ranged from grades four to eight in 1996 and grade four through six in 1997.. During the boat tours, students attended two of six activity stations:

1) With the river bluffs as a backdrop and rock samples in their hands, they learned about the various rock types, and what the rock layers tell us of the geologic history of this area.

2) Using microscopes, they peered at macro-invertebrates and marveled at the diversity of life forms present. They learned of the significance of the various species in assessing water quality.

3) Students watched water drain from huge riverbank pipes into the river, and made the connection to the storm drains on their city streets and the potential to introduce lawn and other chemicals into the river from miles away. They analyzed flotsam and determined percentages of the different types of debris.

4) Using binoculars, students gained an awareness of the river ecosystem and life in the river floodplain. Along the river banks, they identified evidence of the 97 flood.

5. Students saw herons, ducks, beavers, eagles, deer, swallows, and kingfishers while at the wetland wildlife station. They used binoculars to look for river basin wildlife.

6) In the pilothouse, students learned about the science and technology of boat navigation. The pilot also spoke about river history and the impact of the 97 floods on river navigation.

Three Rivers Initiative Teacher Environmental Workshops

The Science Museum held *Confluences: An Environmental Conference for K-12 Educators on Water* on Saturday, March 23, 1996. 55 teachers attended the day-long event. These teachers, in turn, were responsible for providing part or all of the classroom instruction to 8,443 students. Some of the speakers included Scott Sparlin of Coalition for a Clean Minnesota River, Bill Mittelfeldt of Anoka High School, and Pauline Langsdorf of Metropolitan Council Environmental Services.

The Science Museum held *Rivers: An Environmental Conference for Teachers* on Saturday, November 16, 1996. 74 teachers attended the day-long event. These teachers, in turn, were responsible for providing part or all of the classroom instruction to 6,980 students. Session presenters included educators from Eden Prairie High School, Little Falls High School, Northfield High School, Zumbrota-Mazeppa Middle School, Webster Open School in Minneapolis, students from Anoka High School. Staff members from the Science Museum, Hennepin Conservation District, School Nature Area Project, and the Mississippi National River and Recreation Area presented topics such as Basic Principles of Streams and Stream Life, Connecting Schools around the World via Water Quality Monitoring, Rivers as Integrating Topics for Interdisciplinary Projects, River Study for Primary Students, and Benthic Macroinvertebrate Monitoring.

VI. Evaluation

Each aspect of TRI will involve front-end, formative, and summative evaluation:

- Front-end evaluation assists in determining how an intended audience's prior knowledge, assumptions, attitudes, and beliefs may affect its ability and inclination to be receptive to the information a proposed project intends to disseminate.
- Formative evaluation involves using representatives of an intended audience to provide feedback and reactions to a project in its developmental stages. This information makes it possible to modify and adjust a project before it is finalized and change becomes more difficult and expensive.
- Summative evaluation generates information regarding how intended audiences are responding to the final project. This information reveals whether the educational goals are being met.

It is difficult to quantify the educational success of an informal education project such as TRI, but SMM will seek to include elements in TRI that help to quantify the success of the project. Green Street®, for example, includes several such indicators:

- Specially marked Energywise Lighting Catalogs made it possible for NSP to determine how many light bulb orders originated through Green Street® visits.
- The efficiency of low-flow showerheads is displayed in Green Street® and visitors to the exhibit are referred to SMM's Science Explore Store where they are sold. The number of showerheads sold is an indication of the efficacy of the exhibit.
- SMM's household hazardous waste card (Watch Your Waste) is available in Green Street®. The number distributed each year is an indication of the exhibit's success in encouraging visitors to be more conscientious with their household hazardous wastes.

Although it is too early to identify comparable opportunities, TRI will endeavor to incorporate similar kinds of quantifiable measures into its exhibits and programs.

VII. Context Within the Field

Presently, exhibits and programs about the Mississippi, Minnesota, and St. Croix rivers are lacking both at SMM and elsewhere. In a state where most attention and concern is focused on lakes, TRI will significantly increase the visibility of these three rivers in particular and rivers in general. The public's appreciation of rivers will be enhanced as well as its knowledge of rivers as ecological systems distinct from lakes.

Building on H_2O Minnesota and the Environmental Exhibits Collaborative (which focused on water), TRI will enhance SMM's experience in communicating to the public the issues surrounding the state's water resources. TRI also will play a major role in helping SMM to greatly expand the public's appreciation of the Mississippi River.

VIII. Budget Context

SMM will expend about $77,000 of its own funds during fiscal year 1994-95 on the development of TRI and the associated Project Mississippi for which it is seeking funding through the National Science Foundation (NSF). If successful, the NSF proposal will provide between $500,000-$600,000 for the development of Project Mississippi, which probably would begin in fall 1995 and run for two to three years.. TRI is part of a larger plan on the part of SMM to serve a vital role in the interpretation of the Mississippi River in Minnesota.

IX. Dissemination

All of the products produced for TRI are intended for dissemination to the public.

X. Time

Development of TRI will not exceed the two-year time period for this appropriation. The products produced through TRI, however, will endure long after the end of the biennium.

XI. Cooperation

SMM has been discussing TRI in particular and the Mississippi River in general with the Mississippi National River and Recreation Area (MNRRA) staff. SMM and MNRRA likely will be cooperators on this and other projects, but the precise nature of this cooperation has not been delineated at this time. The project manager will be spending 67% of his time on TRI.

XII. Reporting Requirements

Semiannual six-month work program update reports will be submitted not later than January 1, 1996, July 1, 1996, January 1, 1997, and a final six-month work program update and final report by June 30, 1997.