National Park Service
U.S. Department of the Interior

Mississippi National River and Recreation Area
St. Paul, MN

Mississippi National River and Recreation Area
Confluence Area Shuttle Plan

Clockwise from top left: Coldwater Spring; Minnehaha Falls Regional Park; Minnesota Valley National Wildlife Refuge Visitor Center

Source: National Park Service

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Volpe The National Transportation Systems Center

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Contents

Report Notes

This report was prepared by the U.S. Department of Transportation John A. Volpe National Transportation Systems Center, in Cambridge, Massachusetts. The project team was led by Ben Rasmussen of the Transportation Planning Division and included Jared Fijalkowski of the Organizational Performance Division and Jonathan Frazier of the Transportation Planning Division.

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Definitions

The following terms are used in this report:

ATS	Alternative Transportation System
MAC	Metropolitan Airport Commission
MNRRA	Mississippi National River and Recreation Area
NPS	National Park Service
NWR	National Wildlife Refuge
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled

Overview

Since 2011, the Mississippi National River and Recreation Area (MNRRA) has worked with the U.S. Department of Transportation John A. Volpe Center National Transportation Systems Center (Volpe Center) to identify, develop, promote, and expand the alternative transportation system that serves the park. The goal of these activities is to increase the number of visitors that walk, bicycle, and take transit to and within the park. One of the Volpe Center's tasks is to plan for a shuttle service to and within the park that would allow visitors to access key destinations without the use of a car.

This document lays out a plan for a passenger shuttle that would transport visitors to and between key destinations in the MNRRA at the confluence of the Mississippi and Minnesota Rivers. The Volpe Center has worked with the National Park Service (NPS) and representatives from the agencies that manage key destinations in the confluence area to develop a plan that provides visitors with access to the confluence area without the use of personal vehicles. The shuttle plan also aims to increase visitation to the key destinations by visitors who may not have visited if the shuttle did not operate.

Purpose and Need

The proposed confluence area shuttle would provide visitors access to key destinations near the confluence of the Mississippi and Minnesota Rivers without the use of a car. Nice Ride Minnesota[1] serves some of these destinations, but not all visitors are willing to bicycle to and between the destinations. Additionally, some destinations are served by light rail[2], but visitors cannot travel between all of the key destinations using existing public transit. A shuttle between key destinations would make it easier for visitors to see more than one destination in the confluence area.

Beyond simply providing transportation to visitors, the shuttle is intended to provide a valuable visitor experience by connecting visitors to the various destinations in the confluence area. Interpretation may also be provided on the shuttle vehicle, possibly in the form of a recorded narrative or on-shuttle volunteer providing information directly to visitors.

Since 2010, the MNRRA and its partners have been striving to establish a seamless and recognizable alternative transportation system (ATS) that provides visitors access to the park and its major destinations without a car while minimizing impacts to the park's resources. The ATS currently includes existing and proposed bike share stations, transit facilities (bus, light rail, and commuter rail), the Mississippi River Trail, other bicycle and pedestrian infrastructure, nine alternative transportation nodes (key multi-modal access points to the MNRRA); and water access points. It also includes signage and other information that helps visitors navigate the system. The proposed shuttle service will be a valuable addition to the ATS and will complement the other facilities and services that the ATS includes.

Audience

The planned shuttle would serve two main groups of users:

- Tourists and airport visitors that have long layovers on the way to their final destination who may wish to have a natural, historical, or cultural experience while in the Twin Cities.
- Residents and out-of-town visitors who wish to travel to or between the destinations in the confluence area without the use of a car.

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[1] https://www.niceridemn.org/

[2] http://www.metrotransit.org/metro-blue-line

A shuttle stop at Minneapolis-St. Paul International Airport would provide both of these groups with direct access to the shuttle. The shuttle would pick up and drop off passengers within a short walk of the Blue Line light rail station at the airport, thereby allowing visitors to take the light rail from points north or south to access the shuttle. Also, airport visitors would have easy access to the shuttle as the stop would be easily accessible from the Lindbergh Terminal.

Confluence Area

The area surrounding the confluence of the Mississippi and Minnesota Rivers contains several significant destinations in the MNRRA that are in close proximity to each other. Figure 1 shows a map of the MNRRA (shaded in green) and highlights the confluence area. The numbers on the map depict the nine alternative transportation nodes in the MNRRA. These nodes are locations where visitors can easily access the destinations along the river without the use of the car. More information about the nodes and an interactive map of the MNRRA's alternative transportation system can be found at www.rivertripplanner.org.

Figure 1
MNRRA Map

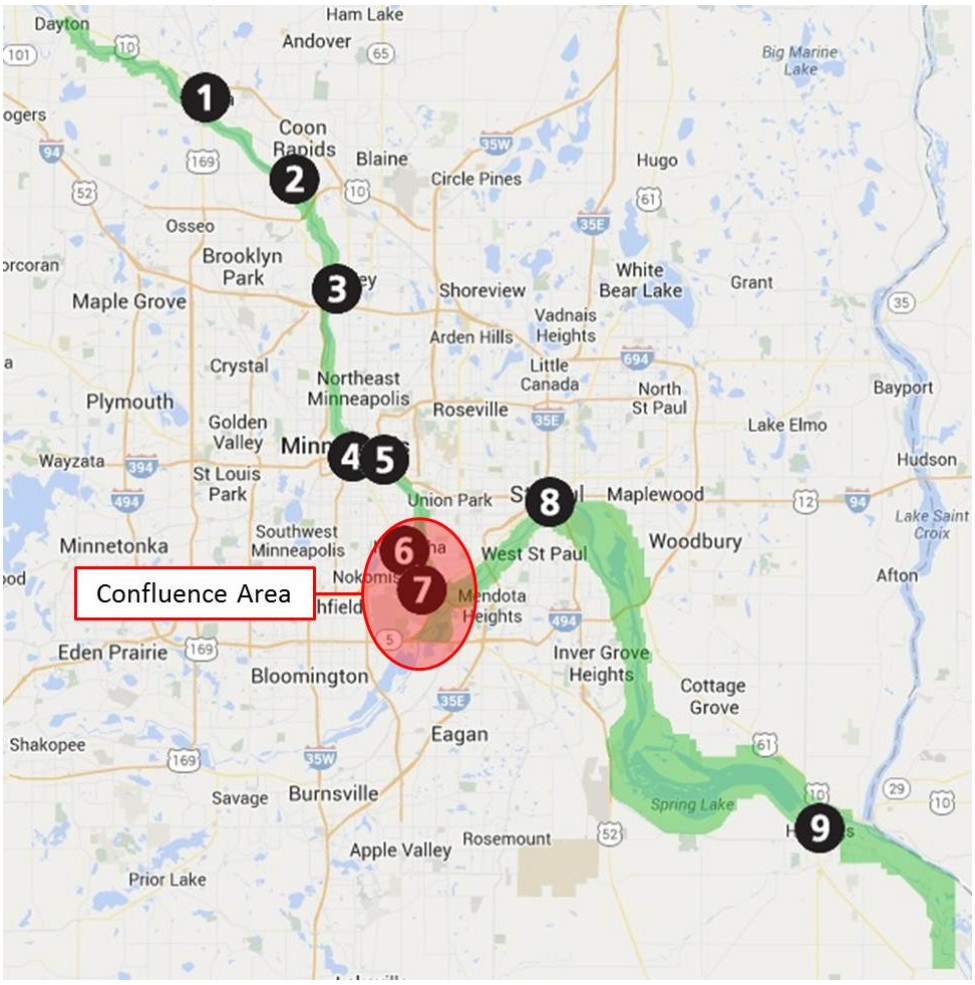


Figure 2 provides a closer view of the confluence area and the key destinations in the area. Some of these destinations are within the MNRRA boundaries (shaded in green) and others are located just outside its borders but are easily accessible from the MNRRA. The Minnehaha and Fort Snelling alternative

transportation nodes currently provide visitors with access to the confluence area without the use of a car. The destinations in the confluence area are:

- **Coldwater Spring** is a NPS unit currently under restoration, formerly a Bureau of Mines research center. The NPS daylighted the spring itself and planted native trees and vegetation in the fall of 2012. The park allows visitors to walk through the restored oak savannah prairie and view the spring.
- **Fort Snelling State Park** is a large state park at the confluence of the Mississippi and Minnesota Rivers that attracts hundreds of thousands of Twin Cities residents and tourists each year. The park provides 18 miles of hiking trails, five miles of biking trails, snowshoe and canoe rentals, picnicking, fishing, boating, and swimming. This park is difficult to access without a car.
- **Historic Fort Snelling** is one of, if not the most important historic site in the MNRRA and the state of Minnesota. The fort was decommissioned after over 100 years of use in 1945 and designated as Minnesota's first National Historic landmark in 1960. Since then, Historic Fort Snelling has been rebuilt and now teaches visitors about the military history of the area and the fort's significance in Minnesota history.
- **The Mall of America** is the busiest shopping mall in the world. It attracts 40 million visitors annually, making it the most popular tourist attraction in Minnesota. The Mall is served by MetroTransit's Blue Line Light Rail, the Red Line Bus Rapid Transit, and several buses.
- **Minneapolis-St. Paul International Airport** serves as the Twin Cities region's major airport hub. It is served by MetroTransit's Blue Line light rail line and several buses provide direct access to the airport. Airport visitors are just a short distance from the other destinations in the confluence area.
- **Minnehaha Falls Regional Park** is one of Minneapolis' most popular parks, attracting over 1 million visitors annually. The park overlooks the Mississippi River and features several attractions including Minnehaha Falls, the John H. Stevens House, the Longfellow House, SeaSalt Eatery, formal gardens, outdoor concert venues, and several picnic areas.
- **Minnesota Valley National Wildlife Refuge (NWR)** is a greenbelt of large marsh areas bordered by grain terminals, highways, residential areas, office buildings, and farm fields. Stretching nearly 70 miles along the Minnesota River from the Fort Snelling area to Henderson, Minnesota, this U.S. Fish and Wildlife Service refuge provides resting, nesting, and feeding for many animals, waterfowl, and other migratory birds.

Figure 2
Confluence Area Map

Stakeholders

With the exception of Coldwater Spring, which is owned and managed by the NPS, each of the key destinations in the confluence area is owned and managed by a difference agency. Table 1 lists the destinations and their managing agencies.

Table 1
Confluence Area Destinations and Managing Agencies

Destination	Agency
Coldwater Spring	NPS
Fort Snelling State Park	Minnesota Department of Natural Resources
Historic Fort Snelling	Minnesota Historical Society
Mall of America	Mall of America
Minneapolis-St. Paul International Airport	Metropolitan Airport Commission (MAC)[3]
Minnehaha Falls Regional Park	Minneapolis Park and Recreation Board
Minnesota Valley NWR	U.S. Fish and Wildlife Service

The MNRRA and the Volpe Center consider these agencies as partners in the shuttle planning and operations processes. The Volpe Center discussed the concept of the shuttle with representatives from each of these agencies and gathered input on a potential route, service frequency, stop locations, marketing, funding, maintenance, and operations. As the process moves towards implementation, the MNRRA and the Volpe Center will continue to work with these stakeholders to ensure the success of the shuttle service.

Shuttle Service Overview

The proposed shuttle service would transport visitors between the various destinations in the confluence area of the Mississippi and Minnesota Rivers. The NPS identified this area for the shuttle service because its destinations are close enough to allow visitors to visit them all within one day via the shuttle but far enough apart to make it difficult for visitors to access them all on foot. Additionally, the NPS believes that many people drive between some of these destinations over the course of a day, and a shuttle could substitute those vehicle trips with shuttle trips.

The shuttle service would operate between the Saturday before Memorial Day and Labor Day, either on weekend days and holidays or every day. The destinations in the confluence area see high visitation during this timeframe and on these days. The shuttle would pick up and drop off passengers between the hours of 9:00 AM and 5:00 PM. These times coincide with the hours of the Minnesota Valley NWR Visitor Center (9:00 AM to 5:00 PM), Historic Fort Snelling (10:00 AM to 5:00 PM), and the Fort Snelling State Park Visitor Center (8:00 AM to 4:00 PM). In order to provide hourly northbound and southbound service, two shuttle vehicles would be required. These shuttle buses would accommodate approximately 20 people and may have a rack to carry a limited number of bicycles.

The Volpe Center recommends that the MNRRA and its partners plan to operate the shuttle as a two-year pilot project. During the first year, the MNRRA can evaluate the shuttle service (e.g., ridership, on-time performance, etc.) and make changes as needed. During the second year, the MNRRA can continue to evaluate the shuttle service to see if the implemented changes improve performance. Additionally, it can take time for ridership to grow and the MNRRA and its partners can see if marketing and outreach improve ridership during the two years. At the end of the pilot period, the MNRRA and its partners can determine whether to continue operating the shuttle or to terminate service.

[3] The MAC operates and manages the airport. However, the Airport Foundation MSP works with the MAC to enhance the experience of travelers at the airport and support the airport and broader aviation community. The Airport Foundation MSP was identified as the proper agency to collaborate with regarding operating this planned shuttle service.

Proposed Shuttle Destinations and Route

Proposed Shuttle Stops

The Volpe Center, in conjunction with the stakeholders that own and operate each of the destinations listed in the Confluence Area section, identified the following stop locations what would serve each destination. Table 2 provides some summary information about each stop.

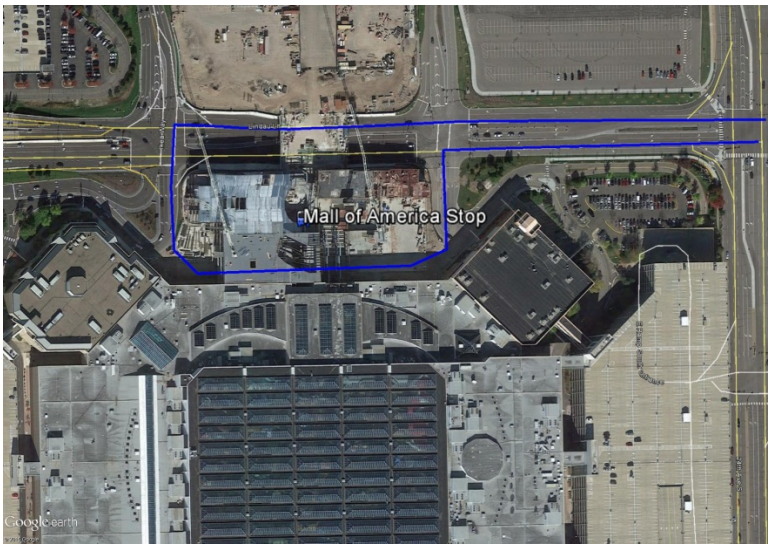
Table 2
Proposed Shuttle Stop Locations

Destination	Stop Location	Address	Visitation	Miles to Next NB/SB Stop	Minutes to Next NB/SB Stop
Mall of America	Transitway on north side of Mall	8240 24th Avenue South, Bloomington	13.5 million visitors between June and August (40% of those are out-of-town visitors)	1.5/NA	6/NA
Minnesota Valley NWR	Parking lot at visitor center	3815 American Blvd E, Bloomington	2,750 people go to visitor center between May and August	3.6/1.5	6/6
Minneapolis-St. Paul International Airport	Metro Transit bus stop area	6450 Glumack Drive, Minneapolis	Over 17 million enplanements annually	3.6/3.6	10/5
Fort Snelling State Park	Parking lot at visitor center	101 Snelling Lake Road, St. Paul	35,000 people go to visitor center between May and August	4.5/3.6	10/8
Historic Fort Snelling	Parking lot at visitor center	200 Tower Avenue, Minneapolis	Over 33,000 visitors in June, July, and August	1.6/4.7	4/11
Coldwater Spring	Parking lot at walking path	5601 Minnehaha Park Drive South, Minneapolis	1,500 visitors per month between April and October	1.4/2.1	4/6
Minnehaha Falls Regional Park	50th Street/ Minnehaha Park Blue Line Station	5010 Hiawatha Avenue, Minneapolis	692,000 visitors in the summer months	NA/1.0	NA/4

Mall of America

The Mall of America would serve as the southern terminus of the proposed shuttle route. Due to construction at the Mall, the exact stop location is to be determined. One idea is for the shuttle to pick up and drop off passengers in the transit center at the Mall. At the end of the southbound trips, the shuttle vehicle would layover in the parking lot until beginning the next northbound trip. The shuttle would access the Mall of America via Lindau Lane, 24th Avenue South, and American Boulevard via the transit center, which is under reconstruction but will be open in 2016. Figure 3 shows a map of the shuttle stop at the Fort Snelling State Park Visitor Center.

Figure 3
Map of Proposed Mall of America Shuttle Stop



Minnesota Valley NWR

The shuttle would stop directly in front of the Visitor Center in the parking lot on American Boulevard. There is a sidewalk that provides easy access to the Visitor Center, from which visitors can access walking trails. Figure 4 shows a map of the shuttle stop at the Minnesota Valley NWR Visitor Center.

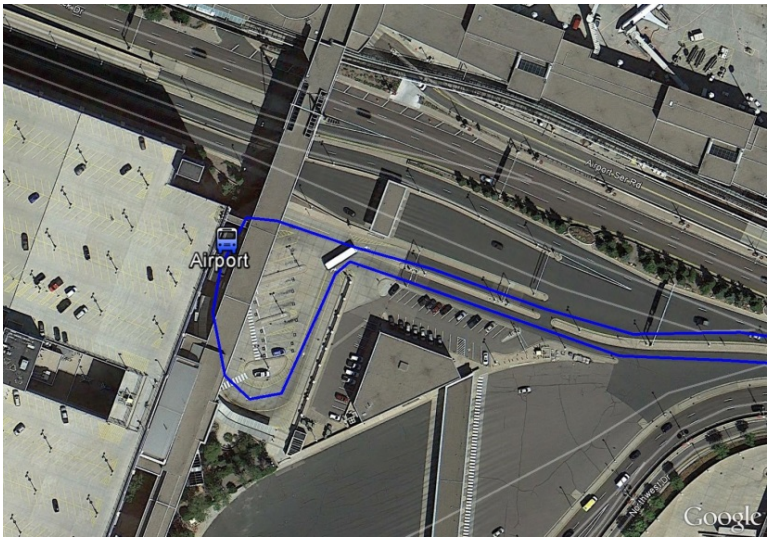
Figure 4
Map of Proposed Minnesota Valley NWR Shuttle Stop

Minneapolis-St. Paul International Airport

Buses heading either northbound or southbound would travel from State Highway 5 onto Glumack Drive and would stop in the transit bus stop area of the Lindbergh Terminal, which is at the eastern end of the parking garage at the Minneapolis-St. Paul International Airport. This location is near the rental car area and is a short walk from the Terminal 1 – Lindbergh light rail station, which is one stop north of the Terminal 2 – Humphrey light rail station. The shuttle buses would return onto Green Lane to State

Highway 5 to travel to the next stop, either northbound or southbound. Figure 5 shows a map of the shuttle stop at the Minneapolis-St. Paul International Airport.

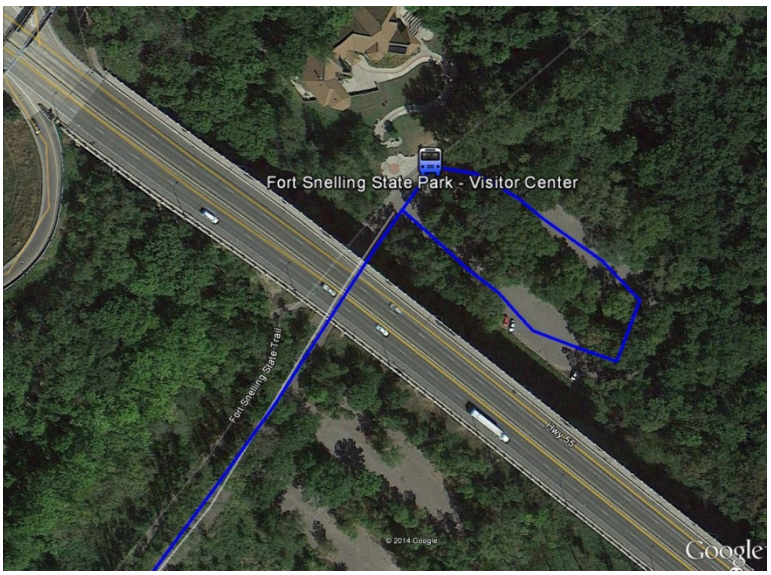
Figure 5
Map of Proposed Minneapolis-St. Paul International Airport Shuttle Stop



Fort Snelling State Park

The shuttle would access the Fort Snelling State Park Visitor Center from Post Road via State Highway 5. Upon entering the parking area at the end of Post Road, the shuttle would loop around and would stop directly in front of the Visitor Center. There is a sidewalk that provides easy access to the Visitor Center from this location. The shuttle would then proceed onto Post Road to access State Highway 5 to travel either north or south. Figure 6 shows a map of the shuttle stop at the Fort Snelling State Park Visitor Center.

Figure 6
Map of Proposed Fort Snelling State Park Shuttle Stop



Historic Fort Snelling

Buses heading southbound toward Historic Fort Snelling would travel south on State Highway 55, continue straight onto Minnehaha Avenue, turn right at Airport Service Road, turn left onto Bloomington Road, then turn right onto Tower Avenue to access the fort. Heading northbound to the fort, buses would travel east on State Highway 5 and take the exit for Fort Snelling. The buses would then take the exit for Bloomington Road and stay straight onto Tower Avenue to access the fort. The shuttle would stop directly in front of the Historic Fort Snelling Visitor Center in the parking lot on Tower Avenue. This location is a very short walk to the visitor center and is a 0.3-mile walk to the historic fort. The parking lot is accessed via Tower Road from Bloomington Road and State Highway 55. When departing Historic Fort Snelling, the buses would travel north on Tower Avenue. Northbound buses would stay on Tower Avenue to merge onto State Highway 55 West. Southbound buses would turn left onto Bloomington Road, turn right onto Airport Service Road, and merge onto State Highway 55 East toward State Highway 5. Figure 7 shows a map of the shuttle stop at Historic Fort Snelling.

Figure 7
Map of Proposed Historic Fort Snelling Shuttle Stop

Coldwater Spring

Buses heading southbound toward Coldwater Spring would travel south on Minnehaha Avenue and turn left onto Minnehaha Park Drive South to access the parking lot. Heading northbound to Coldwater Spring, buses would travel west on State Highway 55 and turn right onto East 54th Street. They would then turn right onto Minnehaha Park Drive South. The shuttle would stop at the end of the gravel parking lot, adjacent to the entrance to the trail that leads to Coldwater Spring. This is the closest a vehicle can get to the spring. The shuttle would head north or south in the reverse direction as described above. Figure 8 shows a map of the shuttle stop at Coldwater Spring.

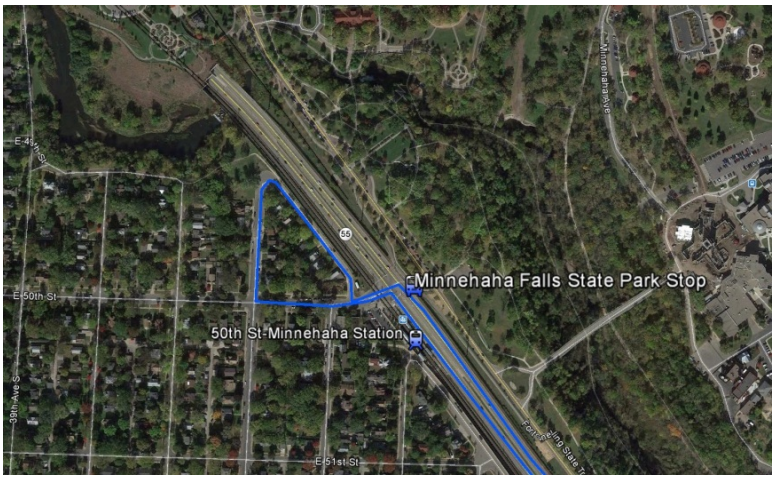
Figure 8
Map of Proposed Coldwater Spring Shuttle Stop

Minnehaha Falls Regional Park

Minnehaha Falls Regional Park serves as the northern terminus of the proposed shuttle route. The shuttle stop location is yet to be finalized, but the proposed location is on 50th Street just west of 50th Street-Minnehaha station. Heading northbound, the shuttle would turn left from Hiawatha Avenue (Route 55) to 50th Street, turn right onto Hiawatha Avenue (a separate, one-way road adjacent to Route 55), which turns into 42nd Avenue. The shuttle would then turn left onto 50th Street and stop along the curb just west of the station. To access Minnehaha Falls State Park, visitors would walk along 50th Street and cross Hiawatha Avenue (Route 55). Figure 9 shows a map of the shuttle stop the Minnehaha Pavilion at Minnehaha Falls Regional Park.

If this location is not feasible, the bus stop on the northbound side of Hiawatha Avenue (Route 55) could serve as the northern terminus of the shuttle route. This location requires transit users to cross Hiawatha Avenue (Route 55) to access the shuttle, but drops off and picks up shuttle riders closer to Minnehaha Falls Regional Park.

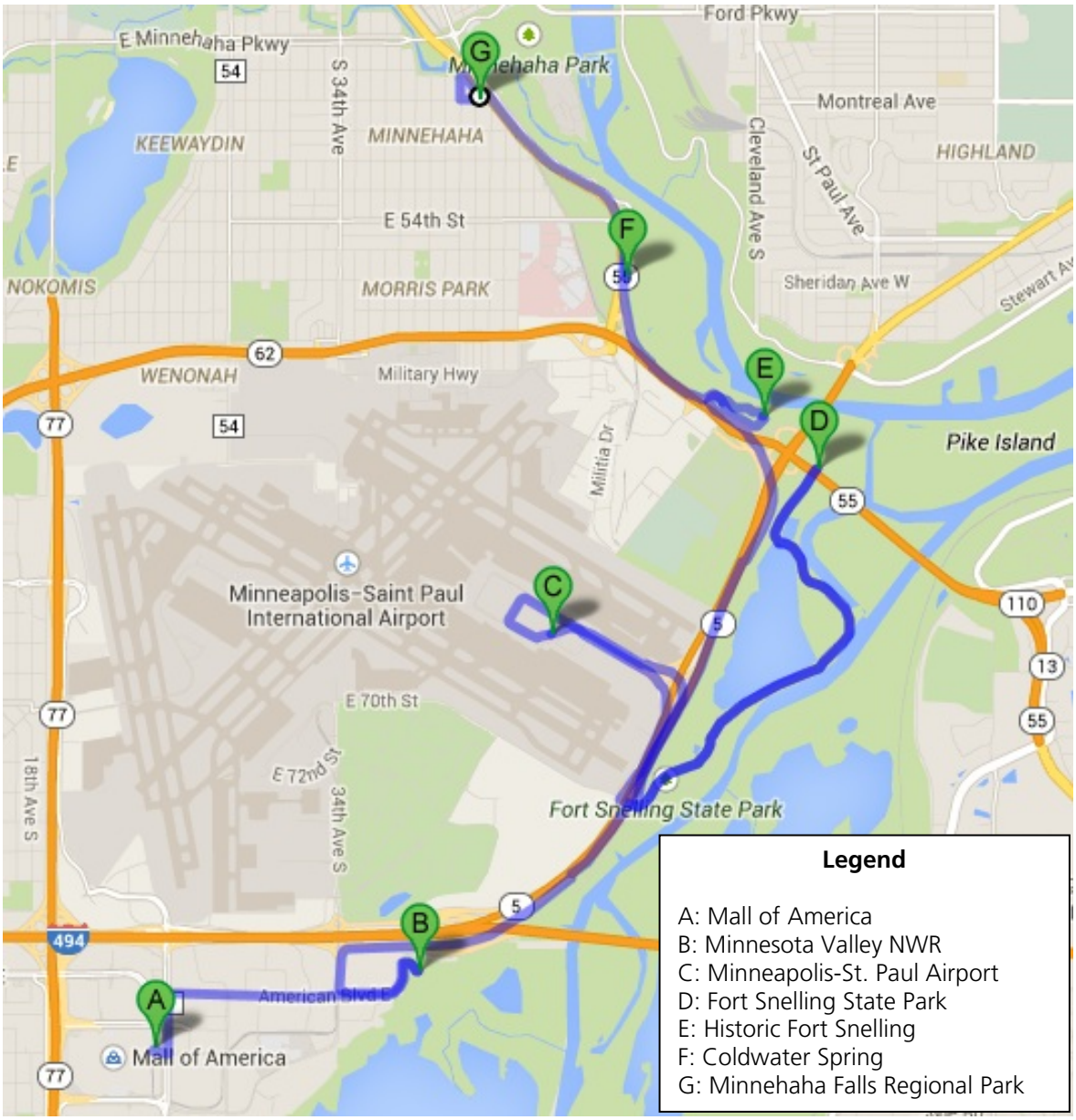
Figure 9
Map of Proposed Minnehaha Falls Regional Park Shuttle Stop



Proposed Shuttle Route

The Volpe Center analyzed a shuttle service that links each of the destinations in the confluence area in the most direct and logical way. Figure 10 shows the proposed northbound portion of the proposed shuttle route.

Figure 10
Proposed Shuttle Route Map



The shuttle must take a fairly circuitous route between the stops, a necessity due to the geography of the area. Generally the shuttle takes local roads constrained with the rivers on one side and limited-access highways on the other. Most of the route travels along the high river bluffs. However, the stop at the Fort Snelling State Park Visitor Center is at the bottom of the bluffs. Serving this stop requires a long segment of backtracking to reach Post Road.

There are overpasses at several points along the route, but all of them have the clearances to fit a small bus, and many of them serve large trucks, public transit buses, and tour buses each day. However, clearances must be confirmed using the actual dimensions of the vehicle before beginning service. All bridges along the route can support most buses, but again this should be checked using the actual weight of the chosen vehicle.

Several of the stops require the bus to make a complete turn in a cul-de-sac; this is easily done with small shuttle buses but can be difficult impossible with larger vehicles. Because turning radii vary between different models and manufacturers this should be confirmed as well.

Time of Year, Schedule, and Frequency

The planned MNRRA Shuttle in the confluence area would operate between Memorial Day and Labor Day only. This shuttle plan analyzes two concepts: weekend day and holiday service only and seven-day-per-week service. The shuttle would pick up and drop off passengers between 9 AM and 5 PM on those days.

In this shuttle plan, we have indicated that the shuttle would pick up and drop off passengers once per hour in each direction (northbound and southbound) at each stop. Table 3 shows a potential schedule for the proposed shuttle route by stop for both northbound and southbound travel. Because each northbound and southbound trip begins on the hour, the times that the shuttle departs from each stop would be the same every hour (e.g., eight minutes past the hour for all northbound trips from the Airport). This schedule makes it easier for the users to know when the next shuttle would be arriving. The schedule also includes a two-minute layover at each stop for passengers to board and alight, and for the driver to answer any questions that the visitors have about the destinations or the shuttle.

Table 3
Proposed Shuttle Schedule (Northbound and Southbound)

	Northbound						
	Mall of America	Minnesota Valley NWR	MSP Airport	Fort Snelling State Park	Historic Fort Snelling	Coldwater Spring	Minnehaha Falls Park
Bus 1	9:00 AM	9:08 AM	9:16 AM	9:28 AM	9:40 AM	9:46 AM	9:50 AM
Bus 2	10:00 AM	10:08 AM	10:16 AM	10:28 AM	10:40 AM	10:46 AM	10:50 AM
Bus 1	11:00 AM	11:08 AM	11:16 AM	11:28 AM	11:40 AM	11:46 AM	11:50 AM
Bus 2	12:00 PM	12:08 PM	12:16 PM	12:28 PM	12:40 PM	12:46 PM	12:50 PM
Bus 1	1:00 PM	1:08 PM	1:16 PM	1:28 PM	1:40 PM	1:46 PM	1:50 PM
Bus 2	2:00 PM	2:08 PM	2:16 PM	2:28 PM	2:40 PM	2:46 PM	2:50 PM
Bus 1	3:00 PM	3:08 PM	3:16 PM	3:28 PM	3:40 PM	3:46 PM	3:50 PM
Bus 2	4:00 PM	4:08 PM	4:16 PM	4:28 PM	4:40 PM	4:46 PM	4:50 PM

	Southbound						
	Minnehaha Falls Park	Coldwater Spring	Historic Fort Snelling	Fort Snelling State Park	MSP Airport	Minnesota Valley NWR	Mall of America
Bus 2	9:00 AM	9:06 AM	9:14 AM	9:27 AM	9:37 AM	9:44 AM	9:50 AM
Bus 1	10:00 AM	10:06 AM	10:14 AM	10:27 AM	10:37 AM	10:44 AM	10:50 AM
Bus 2	11:00 AM	11:06 AM	11:14 AM	11:27 AM	11:37 AM	11:44 AM	11:50 AM
Bus 1	12:00 PM	12:06 PM	12:14 PM	12:27 PM	12:37 PM	12:44 PM	12:50 PM
Bus 2	1:00 PM	1:06 PM	1:14 PM	1:27 PM	1:37 PM	1:44 PM	1:50 PM
Bus 1	2:00 PM	2:06 PM	2:14 PM	2:27 PM	2:37 PM	2:44 PM	2:50 PM
Bus 2	3:00 PM	3:06 PM	3:14 PM	3:27 PM	3:37 PM	3:44 PM	3:50 PM
Bus 1	4:00 PM	4:06 PM	4:14 PM	4:27 PM	4:37 PM	4:44 PM	4:50 PM

Northbound and southbound trips end at 50 minutes past the hour, providing 10 minutes of recovery time at the end of each northbound and southbound trip. This allows for the drivers to have short breaks at the ends of the trips and can help the shuttle make up for lost time if there are delays.

Vehicles

Two vehicles would be required to provide hourly northbound and southbound shuttle service as described above. The Volpe Center conducted this analysis with the assumption of using 20-30 passenger cutaway, medium-duty buses with diesel engines to provide this service. These vehicles are more fuel-efficient than full-size buses and their capacities are more appropriate for a modest level of ridership. The vehicles could have bicycle racks to allow riders to bring their bicycles with them. Figure 11 includes a photo of a typical 20-30 passenger cutaway shuttle vehicle. The market analysis will result in estimated ridership for the service, which will guide the selection of an appropriate size and type of shuttle vehicle. If the market analysis or based on ridership during the pilot project indicate a need for more capacity, a larger shuttle vehicle should be considered.

Figure 11
Typical 20-30 Passenger Cutaway Shuttle Vehicle
This vehicle provides shuttle service to the Home Of Franklin D. Roosevelt National Historic Site (Photo courtesy of Dutchess County Tourism)

Analysis

This plan makes the following assumptions:

- The shuttle runs from 9:00 AM through 5:00 PM on either Saturdays, Sundays, and holidays or every day between Labor Day and Memorial Day. This is peak season for the destinations in the confluence area.
- Each stop would add two minutes to the run time as visitors disembark, embark, and ask questions to the driver.
- The time at the end of the scheduled northbound or southbound trip is dedicated to recovery time, the time at the end of the route for the driver to rest and to make up for any delays.

Table 4 shows the various attributes of each of the shuttle service.

Table 4
Attributes of Shuttle Service

	Weekend Service	Seven-Day Service
Bus type	Cutaway, medium-duty bus diesel (V6)	Cutaway, medium-duty bus diesel (V6)
Number of buses	2	2
Dates of operation	Weekend days and holidays between the Saturday before Memorial Day and Labor Day	Daily between the Saturday before Memorial Day and Labor Day
Annual days of operation	33	101
Time per trip (including stops and recovery time)	120 minutes	120 minutes
Hours of operation	9 AM to 5 PM	9 AM to 5 PM
Daily roundtrips	8	8
Annual VHT	528 hours	1,616 hours
Route length (roundtrip)	31.5 miles	31.5 miles
Annual VMT	8,316 miles	25,452 miles

Cost

A pilot service such as the one described in this plan is best provided as a service purchased by a private or public bus operator. This makes starting and terminating the pilot service relatively simple when compared with purchasing vehicles and hiring drivers. Either MNRRA or a partner can enter into a business agreement with a private vendor that includes all costs in an hourly rate, as is described below. These agreements are simple and easy to modify if service proves more or less popular than assumed.

The Volpe Center contacted a Twin Cities-based shuttle operator[4] to develop a cost estimate for having a private company provide the proposed shuttle service. The vendor developed its cost estimate based on the following attributes:

- Two 20-seat shuttle vehicles, each traveling roughly 120 miles per day for eight hours each
- Vehicles originate and terminate at the Mall of America and Minnehaha Falls State Park
- Service operates either on weekends and holidays or every day between Memorial Day weekend and Labor Day

The vendor estimated that it would cost $1,544 per day to operate the proposed shuttle service. For weekend and holiday service, the season cost would be $50,952, and for seven-day service, the season cost would be $155,944. This cost includes the shuttle vehicle, maintenance, insurance, gas, and drivers. All of the per-roundtrip, per-day, and per-year costs are listed in Table 5.

[4] The bus operator that provided the estimate is Lorenz Bus Service, Inc. (http://www.lorenzbus.com).

Table 5
All-Inclusive Costs for Shuttle Service

	Weekend Service	Seven-Day Service
Cost per roundtrip	$193	$193
Cost per day	$1,544	$1,540
Cost per year	$50,952	$155,944

To get an estimate of what the per-passenger costs may be, Table 6 shows what the per-passenger costs would be if there were an average or five, 10, or 15 passengers per trip.

Table 6
Costs per Passenger for Shuttle Service

	Weekend and Seven-Day Service
5 riders per roundtrip	$39
10 riders per roundtrip	$19
15 riders per roundtrip	$13

If the decision is made to continue service permanently beyond a two-year pilot trial period, then a MNRRA partner may consider direct vehicle ownership and operation, which may be more cost-effective in the long run.

Conclusion

The Volpe Center recommends that, if the NPS and its partners decide to pursue a shuttle service in the confluence area, they consider implementing the proposed shuttle service as a two-year pilot. This service will provide visitors, including transit riders, visitors, and airport customers, with more direct and convenient access to the historic, cultural, scenic, and recreation opportunities that the confluence area's destinations provide. After the first year of pilot service, the service should be evaluated and continued for a second year with any necessary alterations.

The Volpe Center recommends that the NPS and its partner agencies conduct a market analysis to better understand the potential audience of the shuttle service. The market analysis should be able to shed light on exactly what types of people, and roughly how many of them, will desire to use the shuttle.

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This report described a proposed passenger shuttle for the Confluence Area of the National Park Service's Mississippi National River and Recreation Area. The report includes a proposed route, description of the stops, proposed schedules, and cost estimates for operating the shuttle service.

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As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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