


MEMORANDUM



TO: NANCY COWAN, SUPERINTENDENT OF RECREATION
FROM: MATT WIKTOROWSKI, FIELD OPERATIONS SENIOR MANAGER 
SUBJECT: LAKESHORE PARK MOUNTAIN BIKE BRIDGE SURVEY REPORT
DATE: JANUARY 11, 2010

This memorandum transmits a report prepared by the Michigan Mountain Bike Association (MMBA) that documents the results of a survey of trail bridges in Lakeshore Park.

Upon performing a recent pedestrian bridge repair the Department of Public Services requested the MMBA to identify GPS coordinates of all multi-use bridges contained within Lakeshore Park. This request was made to enhanced communication, improve structure monitoring and expedite repair requests. Soon after speaking with MMBA trail coordinators this comprehensive report was prepared to address history, bridge condition, structural concerns, and general feedback.

Bridges and boardwalks are essential elements that assist in meeting the recreational needs of park users while preserving the integrity of the environment. These bridges maintain the integrity of the overall trail system and safety of all user groups who enjoy multi-use trails. The comprehensive report will be utilized to further enhance the parks natural resources and assist with developing funding strategies for future bridge repair and replacement.

Lakeshore Park Mountain Bike Bridge Survey Fall 2009



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Introduction

Novi's Lakeshore Park consists of 610 acres of wetlands and higher ground, bisected by a tributary of the Rouge River and small seasonal streams. Despite their development and maintenance costs, bridges and boardwalks are an essential element of providing sustainable access to this resource to meet the recreational needs of Lakeshore Park users while preserving the integrity of the wetlands environment.

The bridges at Lakeshore Park are of differing ages and have been funded and built by a variety of user groups, including both Boy Scout troops and MMBA. A variety of materials and construction methods have been employed over the years.

Because all of these bridges are essential to maintain the integrity of the Mountain Bike trail system at Lakeshore, and for the safety of all of the user groups who enjoy these trails, the MMBA trail coordinators undertake periodic surveys of these bridges. These surveys include monitoring changes over time, looking for structural concerns, and collecting feedback from users. In response to these and in partnership with the City, the MMBA Metro South chapter has funded and addressed major repairs as required.

This document describes the results of our most recent survey.

Bridge 1

Location

1.85 miles from trail head (beginning of “754” section).

N 42° 30.221’

W 83° 29.714’

Description

Bridge #1 is one of the oldest bridges on the trail and has been part of the mountain bike trail system since its inception. It is a 135 foot long span, including entry and exit ramps, that crosses the Rouge River tributary and low lying seasonal wetlands at the beginning of the 754 loop. The bridge is used to bring the mountain bike trail to the west side of the tributary into the meadow area of 754. The bridge is 5 ft in width, which permits passing oncoming traffic and is appropriate considering its length and the chance of encountering others during a crossing. This bridge is a favorite among mountain bikers due to its curves, the open views, length, and the sinuous profile. This bridge has good access from the trailhead by following the 2 track all the way to the stream.

Here’s a recent image of Bridge #1, looking towards the west:



This is a recent overhead view, showing Bridge #1 towards the bottom and Bridge #6 towards the top. (Bridge #7 is just to the left of Bridge #6, but is hidden in trees.)



Condition

The condition of the bridge is generally good, with some frost heave and settling of supporting piers. Also in its early years, this bridge was used to carry park maintenance equipment to the meadow area, and perhaps the piers were not sufficient for that task. One pier in particular has settled more than others, and while it is stable we are anticipating repairing it during a future trail day. There has been little new movement year to year.

Here's a recent image centered on the settled pier:



Bridge 2

Location

2.62 miles from trail head (beginning of "Lost Loop" section).

N 42° 29.852'

W 83° 29.892'

Description

Bridge #2 was the second bridge that was funded by the MMBA/Eagle Scout "buy a plank" fundraising project. This bridge was built in May of 2004 before first MMBA mountain bike race at Lakeshore Park and was put in to avoid multi-directional traffic coming to and from the Lost Loop section of trail. It is an 85 foot long span, including entry and exit ramps, that crosses low lying seasonal wetlands at the beginning of the Lost Loop. Together with Bridge #3, this bridge brings the mountain bike trail back to the east side of the tributary in the south end of the park, traversing from the meadow areas of 754 into the higher ground towards the east. The bridge is 4 ft in width and fairly springy due to the distance between supporting piers and the nature of its construction. This bridge is best accessed from the retaining pond access road on the north side of 12 mile, where an old closed but passable section of trail leads directly to this area.

Here's a recent image of Bridge #2, looking towards the east:



This is a recent overhead of this area, with bridge #2 and #3 towards the right, and Bridge # 4 and #6 towards the left:



Condition

The condition of the bridge is good. There has been little change year to year.

Bridge 3

Location

2.64 miles from trail head (beginning of “Lost Loop” section).

N 42° 29.838’

W 83° 29.884’

Description

Bridge #3 was also built for the first MMBA mountain bike race, just before Bridge 2 was built. It is a 20 foot long span that immediately follows Bridge #2 at the beginning of the Lost Loop that spans the Rouge River tributary. The bridge is 4 ft in width, which is appropriate considering its short length and the minimal chance of encountering others during a crossing. This bridge is best accessed from the retaining pond access road on the north side of 12 mile, where an old closed but passable section of trail leads directly to this area.

This is a recent image of Bridge #3, looking towards the east:



Condition

The condition of the bridge is good. There has been little change year to year.

Bridge 4

Location

3.44 miles from trail head (returning from "Lost Loop" section).

N 42° 29.850'

W 83° 29.870'

Description

Bridge #4 is a 38 foot span, including entry and exit ramps, that brings the mountain bike trail back west across the Rouge River tributary in Lost Loop. Along with Bridge #1, this bridge (and Bridge #5) has been a part of the trail since the mountain bike trail has been in place. The bridge is 5 ft in width. This bridge is best accessed from the retaining pond

access road on the north side of 12 mile, where an old closed but passable section of trail leads directly to this area.

This is a recent image of Bridge #4, looking towards the west:



Condition

The condition of the bridge is generally poor, with cracked stringers and rotten planks. An emergency repair to replace broken planks was undertaken by the City of Novi in fall 2009. This span is due to be replaced as part of the MMBA Spring 2010 trail work.

This is a recent image of the bridge planking:



This is a recent image of a stringer under the bridge:



Bridge 5

Location

3.45 miles from trail head (returning from “Lost Loop” section).

N 42° 29.856’

W 83° 29.876’

Description

Bridge #5 is a short 17 ft long boardwalk that immediately follows bridge #4 and crosses a seasonal wet area. The boardwalk is 4 ft in width. This boardwalk is best accessed from the retaining pond access road on the north side of 12 mile, where an old closed but passable section of trail leads directly to this area.

This is a recent image of Bridge #5, looking southwest:



Condition

The condition of the planks on this boardwalk is generally good. Supporting stringers are not inspected as they are mostly buried, but the boardwalk appears structurally sound.

Bridge 6

Location

3.94 miles from trail head (end of "Lost Loop" section).

N 42° 30.195'

W 83° 29.732'

Description

Bridge #6 and Bridge #7 were built by MMBA members in May of 2005 for the second MMBA Mountain Bike race. These were built to eliminate the water crossing that was in the first race by giving riders a return bridge from the 754 loop, eliminating 2-way traffic. Bridge #6 is a 45 ft long bridge that crosses the Rouge River tributary and together with Bridge #7 bring the mountain bike trail back to the east of the Rouge River tributary for the remainder of the trail. This bridge is 4 ft in width. This bridge has good access from the trailhead by following the 2 track all the way to the stream.

This is a recent image of Bridge #6, looking east:



Condition

The condition of the bridge is generally good. There has been little change year to year.

Bridge 7

Location

3.95 miles from trail head (end of "Lost Loop" section).

N 42° 30.198'

W 83° 29.710'

Description

Bridge #7 is a 22 ft long, 4 ft wide span that immediately follows Bridge #6 and crosses seasonally wet lowland. Together with Bridge #6, this brings the mountain bike trail back to the east of the Rouge River tributary for the remainder of the trail. This bridge has good access from the trailhead by following the 2 track all the way to the stream.

This is a recent image of Bridge #7, looking northeast:



Condition

The condition of the bridge is good. There has been little change year to year.

Bridge 8

Location

4.05 miles from trail head (beginning of "Crater" section).

N 42° 30.167'

W 83° 29.598'

Description

This was the first bridge that was funded by the MMBA/Eagle Scout "Buy a Plank" fundraising program and was built mostly by the Eagle Scouts. This bridge was one of the first to be put in when the mountain bike trail was re-connected after the Sandstone settlement, and it eliminated 2-way traffic on Bridge #9. Bridge #8 is a 67 foot span,

including entry and exit ramps, that crosses a shallow flowing stream that drains the central wetlands area of the park towards the Rouge River. The bridge is 5 ft in width. This bridge has good access from the trailhead by following the rather rustic 2 track all the way to the stream.

This is a recent image of Bridge #8, looking southeast:



Condition

The condition of the bridge is generally good. There has been little change year to year.

Bridge 9

Location

5.54 miles from trail head (end of "Swamp" section).
N 42° 30.171'
W 83° 29.584'

Description

Bridge #9 is one of the older bridges at Lakeshore Park and has been in place since the mountain bike trail has been in use. Bridge #9 is a 42 foot span at the end of the Swamp loop that crosses a shallow flowing stream that drains the central wetlands area of the park towards the Rouge River. This bridge brings the mountain bike trail back from the crater area to the remainder of the trail. This bridge is 4 ft in width, which is adequate considering the length of the bridge and the clear sightlines which minimize conflicting traffic. This bridge has good access from the trailhead by following the rather rustic 2 track all the way to the stream.

This is a recent image of Bridge #9, looking northwest:



Condition

The condition of the bridge is fair. This bridge appears structurally sound, but the central piers in the stream have sunk and the stringers are now partially immersed during periods of high water. We have been watching this for some time and have not seen any recent changes, but anticipate replacing the center section of this bridge to remove the need for the piers within the stream sometime in the future.

This is a recent image of the profile of Bridge #9 highlighting the settled center section relative to the stream:



Summary

The bridges on the mountain bike trail at Lakeshore Park are generally in great shape for their intended purpose, with the following exceptions:

Work Item	Description	Priority
1	Bridge #4 needs to be replaced / rebuilt to address structural concerns.	Medium
2	A supporting pier in Bridge #1 has settled and needs to be replaced. Since this is in a wetlands area, sistering an additional 4x4 to the existing pier would have the least impact and cost.	Low
3	We should consider replacing the center section of bridge #9 with a more robust structure, allowing us to avoid piers within the stream bed that have settled.	Low

Of these identified work items, only item #1, the replacement of Bridge #4, is of near term concern. We anticipate replacing this bridge during our MMBA Spring Trail Day.