

UPPER MISSISSIPPI RIVER SOURCE WATER PROTECTION PROJECT

TIME OF TRAVEL ESTIMATES FOR SEVEN MISSISSIPPI RIVER TRIBUTARIES FROM SELECTED POINTS TO THE CONFLUENCE WITH THE MISSISSIPPI RIVER

JUNE 2009

The following travel time estimates were prepared for the Upper Mississippi River Source Water Protection Project by the U.S. Geological Survey for the Sauk, Elk, Crow and Rum Rivers and Elm, Coon, and Rice Creeks. Estimates were prepared for High, Medium, and Low Flow conditions (flows exceeded 10%, 50%, and 90% of the time, respectively) from selected points on the tributary to its confluence with the Mississippi River.

<u>Sauk River</u>	<u>High flows</u>	<u>Medium flows</u>	<u>Low flows</u>
County Road 1	0.03 hr	0.04 hr	0.1 hr
Veterans Drive	2.01 hr	2.51 hr	6.79 hr
County Road 121	5.10 hr	6.33 hr	16.84 hr
Interstate 94 Bridge	5.69 hr	7.07 hr	18.75 hr
County Road 139 (Rockville)	8.56 hr	10.62 hr	27.89 hr
 <u>Elk River</u>	 <u>High flows</u>	 <u>Medium flows</u>	 <u>Low flows</u>
Orono Lake Dam	0.61 hr	1.05 hr	1.48 hr
Orono Lake inlet	2.25 hr	3.77 hr	5.23 hr
BN Railroad	4.38 hr	7.35 hr	10.21 hr
USGS gauge	5.95 hr	9.98 hr	13.84 hr
 <u>Crow River</u>	 <u>High flows</u>	 <u>Medium flows</u>	 <u>Low flows</u>
Interstate 94 Bridge	3.42 hr	8.39 hr	15.24 hr
St. Michael WWTP	5.68 hr	14.20 hr	26.48 hr
Rockford USGS gauge	10.9 hr	27.25 hr	50.84 hr
 <u>Rum River</u>	 <u>High flows</u>	 <u>Medium flows</u>	 <u>Low flows</u>
Below Trott Brook	5.78 hr	10.14 hr	15.44 hr
County Road 22 USGS gauge	9.84 hr	17.28 hr	26.41 hr
 <u>Elm Creek</u>	 <u>High flows</u>	 <u>Medium flows</u>	 <u>Low flows</u>
US 169	0.31 hr	0.75 hr	1.18 hr
Elm Creek Road USGS gauge	4.28 hr	9.60 hr	14.23 hr
Below Rush Creek confluence	5.46 hr	12.24 hr	18.11 hr
93 rd Ave N	8.89 hr	20.09 hr	29.93 hr
 <u>Coon Creek</u>	 <u>High flows</u>	 <u>Medium flows</u>	 <u>Low flows</u>
Northdale Blvd	4.95 hr	6.98 hr	11.58 hr
S Coon Creek Drive	8.82 hr	12.41 hr	20.49 hr
 <u>Rice Creek</u>	 <u>High flows</u>	 <u>Medium flows</u>	 <u>Low flows</u>
Long Lake Rd	4.61 hr	6.39 hr	11.20 hr
Baldwin Lake outlet	10.43 hr	14.37 hr	24.79 hr