

# How Should the NWS Convey Dam Break Information?

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## The Genesee River

### Background

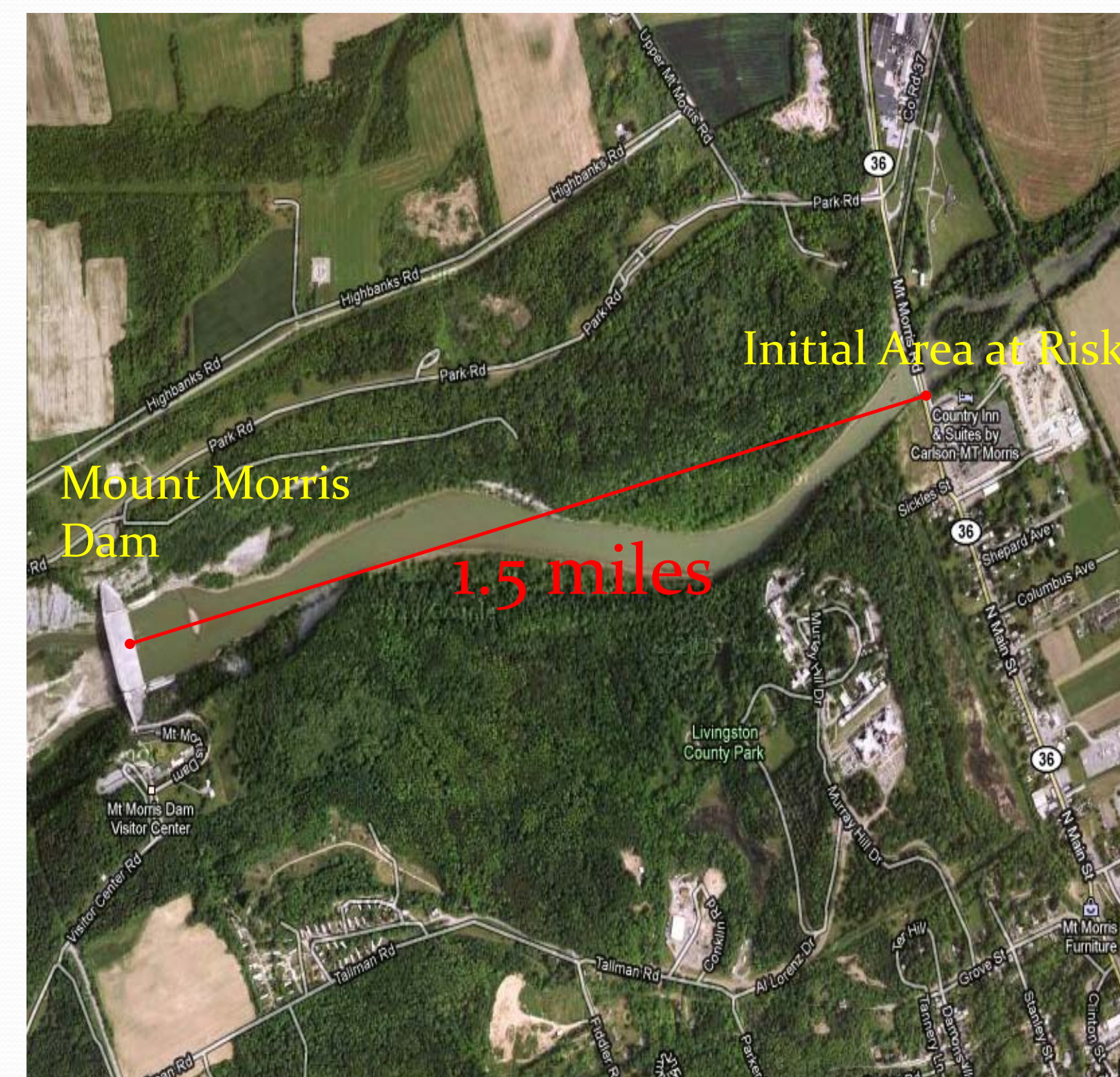
Mount Morris Dam is located in Central New York along the Genesee River. This concrete gravity dam was completed in 1952, with a flood control pool 17 miles long, which is capable of holding over 300,000 acre-feet. The dam has effectively limited flooding in the Rochester Metropolitan area, which is about 50 miles downstream. Mount Morris Dam is Operated by the US Army Corps of Engineers (USACE), and sits on the northern tip of Letchworth State Park.

### Mount Morris Dam



Middle Falls at normal flow in Letchworth State Park, upstream of Mount Morris Dam

### Overview of Mt Morris Dam



### You make the call. History of Outcomes

Dam	Deaths	Summary
Baldwin Hills, CA (Dec 14, 1963)	5	<b>Hero.</b> Signs of failure lead to advance warning. 16,500 evacuated. Many lives saved.
Buffalo Creek, WV (Feb 26, 1972)	125	<b>Villain.</b> Dam failed after heavy rain. Despite concerns, no warning was issued. Most deaths occurred within minutes.
100+ Others	0	<b>Cried Wolf.</b> Report of potential dam failure. Dam never fails.

### The Dilemma

Dam breaks are a low probability, high impact event. The NWS is responsible for alerting the public of a potential hazard, yet there are numerous non-weather factors in play. In the event of a dam failure, history suggests that rapid dissemination is essential to saving lives.

### Dam Break Related Products

Product	Description
Flash Flood Watch (FFA)	50% Confidence, slower dissemination
Flash Flood Warning (FFW)	80% Confidence, fast and widespread dissemination
Civil Emergency Message (CEM)	Fast dissemination, less user familiarity

### Difficult Decision

The Mount Morris Dam exercise simulated a major flooding event, where potential dam failure was one of many issues. A Flash Flood Watch produced varied responses from exercise participants. The less urgent nature of a watch limited the action taken by some. A rapid failure of the Mount Morris Dam would reach the Route 36 bridge in minutes.

### Conclusions

Dam Breaks do not fit into typical NWS warning philosophy. Warning decisions should consider public perception and dissemination, with a focus on providing rapid and accurate information to the public.

### The Exercise

USACE conducted a functional exercise March 3-4, 2010. Representatives from the National Weather Service (NWS) in Buffalo and Northeast River Forecast Center participated with 16 other Federal Agencies. The exercise simulated the remnants of a tropical system bringing over 10 inches of rain to the Genesee River Basin. While the dam did not fail in the exercise, it did prompt discussion on which product would best convey a significant dam break potential.