

WAFFLE CITIZENS ADVISORY BOARD MEETING

King's Walk Golf Course, Grand Forks

January 8, 2003

Following the welcoming remarks, there was a brief introduction by all present. This included the length of time people have resided in the Red River Basin, as well as everyone's specialty. This was followed by a presentation of the Waffle project, dinner, and open discussion.

Discussions focused on the following:

- The history of flooding in the Red River Basin during certain members' lifetimes and the measures they as individuals and their communities have taken when certain water levels have been reached during a flooding event. This included recognizing local flooding patterns and other indicators they look for to determine when to evacuate their homes and the immediate area.
 - At least one member and his family have, over the years, kept a detailed ledger documenting significant flooding events of their immediate community and neighborhood.
- Cases were cited where incorrect information was given out during the 1997 flood. As a result, members were adamant that it was essential to not only have good information, but also a good understanding and interpretation of the circumstances and its ramifications.
- There was discussion of whether the models being developed would have the capability of mimicking a combination of variables and scenarios. It was emphasized that the collection of data combined with the modeling effort would allow the user to pose "what if scenarios". This capability is expected to be enhanced by:
 - The availability of the newly acquired meteorological dataset that extends from the year 1850 to 2001. Also it covers weather stations throughout the basin, including air and soil temperatures, rainfall, snowfall, and evaporation elements.
 - The development of Leon Osborne's more detailed precipitation models, allowing for consequences of certain rain events that could be modeled with small-scale resolution.
- The members were presented with some of the preliminary determinations from calculations, which indicate that as little as 1 inch of water or less (1 inch of water per square mile) might have made a difference in the 1997 flood; meaning that one is not going to get storage in every area, but perhaps one out of 12 sections could store 12 inches of water. The lowest number was 0.3 inches per square mile, and the highest was up around the Red Lake Watershed at 1.9 inches. So, even there, with the large volume of water that comes out of the Red Lake River, it appears as though we are not talking about storing an insurmountable volume of water. Of course, that was for the 1997 flood, and those are still preliminary calculations based upon the existing models.

- Citizens were not entirely surprised on learning that as little as 8–10 inches of moisture can make a significant difference during severe flooding episodes.
- There was much discussion about the current techniques for the collection of very detailed elevation data, in particular, LIDAR (light detection and ranging), which has a vertical resolutions of 6 centimeters. It is very accurate but also very expensive. It is estimated that LIDAR of the entire Red River Basin would cost about \$1000 per square mile. With 40,000 miles in the Red River Basin, it would cost \$40,000,000. As such, a comparison between LIDAR and the free U.S. Geological Survey data and the national elevation dataset is being conducted. This comparison should indicate the differences and help us to determine whether there is any way we could get by using the free data. The preliminary study showed that in most of the areas, at least 70% of the values were within that of the free data values, within 1 meter agreement to the very detailed LIDAR data. It is a lot for the flat area, but we found that most of the errors occurred in river valleys.
- A small-scale study conducted through the create-a-wetland program in Bottineau County was discussed. The study entailed temporarily holding back and storing spring runoff on the create-a-wetland site through April 15 or later. Among the objectives was to determine the impact of this retention of water on crop yield. The impact was observed by comparing yields of grains within similar types of fields. The primary difference was that there would be two categories of sites: those that would store spring runoff and those that would not naturally hold water back.

The results showed that there was a significant increase in crop yield in the sites where spring runoff was held on the field, with yields as great as 140%.

- The primary reason given for this increase was the added moisture attributed to the retention of water where spring runoff was held on the field.
- All present at the meeting indicated that this was clearly good news, but all were quick to add that this cannot be correlated to all areas and all soil types. If this were to be utilized it would definitely be on a case-by-case basis.
- It was indicated that high soil salinity is a major issue in Grand Forks County; as such, retention of spring waters would probably not benefit farmers in this area.
- Outreach and education about the Waffle approach was indicated for all levels of the community; this should include but not be limited to:
 - Approaching agricultural departments within universities to educate young farmers.
 - Approaching the watershed districts and county water resource boards.
 - Educating the general public.