

EXISTING CONDITIONS



CONCLUSION

The goal of this study was to develop alternatives to the existing beach layout and configuration that improved water circulation adjacent to the beach and reduce, to the greatest extent possible, the ongoing beach closures at South Shore Beach. The results of the modeling indicate that alternatives 1 and 4 show increased nearshore water velocities and circulation during winds from the NNE (prominent summer wind direction).

SEPTEMBER 10, 2018

MILWAUKEE SOUTH SHORE PARK PUBLIC MEETING



SMITHGROUP

PROBLEM STATEMENT

- South Shore Beach ranks amongst the worst beaches in the Great Lakes and US in recreational water quality. Studies performed by the McLellan lab from the School of Freshwater Sciences at UWM has carried out extensive field surveys and molecular testing methods to determine the causes of poor water quality at South Shore Beach.
- These studies identified the probable causes of the poor water quality, which include:
 1. Stormwater runoff.
 2. Waterfowl excrement.
 3. CSO discharges.
 4. Boat mooring field.
 5. Restricted water circulation.
- The existing beach and the rocky beach, less than 500 ft. to the south, were monitored side by side for 12 years, and the rocky beach was found to have significantly less *E. Coli* and *Enterococci* bacteria. *E. Coli* and *Enterococci* are indicator organisms for fecal bacteria and a reduction in these indicators signify better water quality.

SOUTH SHORE BEACH IMPROVEMENTS

- Milwaukee County wishes to move forward with a process that focuses on the nearshore influences on the water quality issue. The focus of the project is evaluating the possible relocation of the beach based on previous studies and ongoing testing and analysis.
- The goal is to improve water circulation adjacent to the beach and reduce to the greatest extent possible the ongoing beach closures. For that, four alternatives to the existing beach layout and configuration were considered and evaluated.

ALTERNATIVE 1



This alternative provides a beach closer to the breakwater opening, where wave energy and water circulation is highest.

The proposed jetties were sized to provide a beach area that would match the existing dry beach area (~1 acre, slightly smaller than a football field), which was one of the main constraints that informed the design.

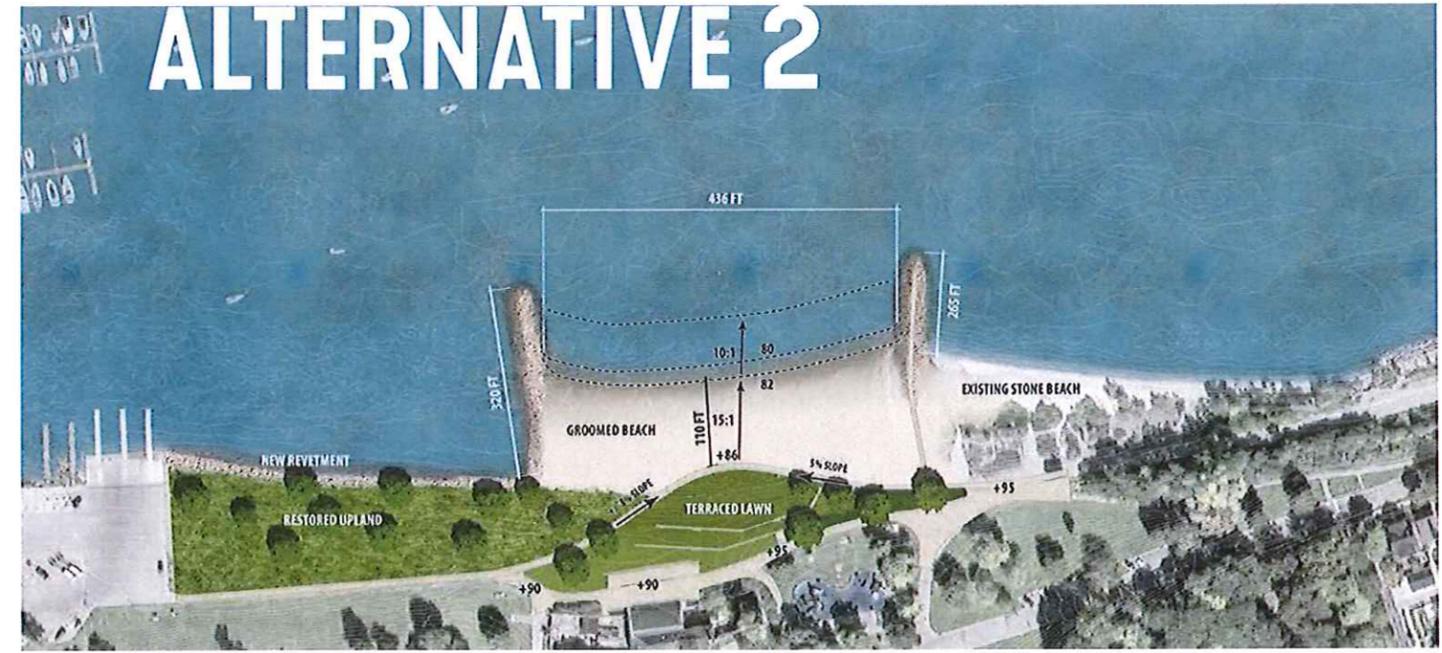
PROS

- Similar beach size to existing beach
- Aligns with existing breakwater opening
- Access to North Groin
- Bio-retention stormwater management

CONS

- Distance from off-street parking
- Further from south shore terrace

ALTERNATIVE 2



This alternative features a beach closer to the existing amenities (restrooms, beer garden), and adjacent to a Terraced Lawn more central to park and pavilion users.

PROS

- Centrally located to south shore terrace
- Similar beach size
- Closer to parking
- Bio-retention and stormwater management
- Maintaining existing rock beach

CONS

- Circulation is less than alternative 1 and 4
- There is a potential for sand to be deposited at South Shore Terrace and on the Oak Leaf Trail

ALTERNATIVE 3



This alternative was developed to create a narrower groomed beach that extends further south, closer to the breakwater entrance, while still providing beach area in front of the pavilion.

PROS

- Centrally located
- Access to South Shore Terrace
- Bio-retention stormwater management
- Viewshed from Oak Leaf Trail

CONS

- Reduced circulation for North Beach in comparison to alternative 1 and 4
- There is a potential for sand to be deposited at South Shore Terrace and on the Oak Leaf Trail

ALTERNATIVE 4



Alternative 4 is located in the same area as Alternative 1 where the water circulation is better, although it features smaller structures.

Alternative 4 was developed in order to reduce impacts to the lakebed and reduce construction costs. This alternative resulted in a recreational beach area reduced by about 40% when compared to Alternative 1 (approximately 50,000 sf vs. 30,000 sf).

PROS

- Centrally located
- Access to South Shore Terrace
- Access to North Groin
- Bio-retention stormwater management
- Reduced cost

CONS

- Distance from off-street parking
- Farther from South Shore Terrace
- Reduced beach area when compared to other alternatives