

# DOWNTOWN TOLEDO WATERFRONT INSPECTION

TOLEDO, OHIO

DECEMBER 2019

PREPARED FOR:  
**CITY OF TOLEDO**  
**STREETS, BRIDGES, AND HARBOR**  
1189 W CENTRAL AVE.  
TOLEDO, OHIO 43610

PREPARED BY:  
**THE MANNIK & SMITH GROUP, INC.**  
1800 INDIAN WOOD CIRCLE  
MAUMEE, OHIO 43537



## EXECUTIVE SUMMARY

In July 2019, the Mannik & Smith Group, Inc. (MSG) was contracted to perform an in-depth inspection of the Downtown Toledo Waterfront Seawalls along the banks of the Maumee River. With the assistance of Marine Solutions, Inc. the inspection of the seawalls were completed in August 2019. The findings and recommendations of the inspections are included briefly below and in-depth in this report. The repair locations can be found in Appendix F.

### **East Seawall (International Park)**

The existing seawall at International Park is a concrete pile cap on treated timber piles with steel sheeting. The seawall is in **Fair Condition** with minor cracking along the concrete face below the waterline. The repair recommendations for the East Seawall at International Park are as follows:

- **Replace the steel sheet missing from station 1+95 to 2+15.** (Non-Structural)
- **Repair and seal the broken downspouts along the wall.** (Preventative)
- **Install joint filler in-between the bulkhead and the wall at station 1+40.** (Preventative)
- **Repair the areas of exposed steel with hydraulic cement recommended by supplier.** (Preventative)

The total costs for these repairs is estimated at **\$16,000**.

### **West Seawall (Promenade Park)**

The existing seawall at Promenade Park features different wall types. The first type is a steel sheet pile wall located before and after the ProMedica property. The second wall type is an 11+/- foot span concrete slab with a concrete pile cap wall on treated timber piles landside and a built-up steel pile cap on treated timber piles riverside.

The steel sheet pile walls are in **Fair Condition** with minor rusting and corrosion observed. The northern most steel sheet pile wall is experiencing settlement of the adjacent sidewalk, caused by a combination of natural settlement and soil loss due to voids/openings from the concrete slab wall and drainage pipes. The recommended repairs for the sheet pile walls are as follows:

- **The sidewalk should be removed above the north sheet pile wall, the area compacted to current specifications, and the voids filled with Low Strength Mortar (LSM).** (Structural)
- **The pipe at station 0+47 should be repaired and sealed to avoid further soil loss.** (Preventative)

The concrete slab and pile cap wall in front of the ProMedica is in **Poor Condition**. The beginning portion on the north end (station 2+00 to 2+25) has failed and is beginning to slump. The concrete pile cap in this area has completely eroded and the two transverse diaphragms in this area exhibit the greatest amount of open corrosion. Currently, the section is being held up by a single reinforcing steel bar that has begun to bend. The remainder of the exterior concrete cap is in similar condition, though not as severe. The bottom of the concrete slab has exposed steel with up to 100% section loss. A load rating was performed on this section of wall and it was determined that nothing heavier than a pickup truck (not an ambulance or a fire truck, for example) could be driven on the slab, if the failing area between station 2+00 and 2+25 was repaired in kind. The recommendations for this section of wall are as follows:

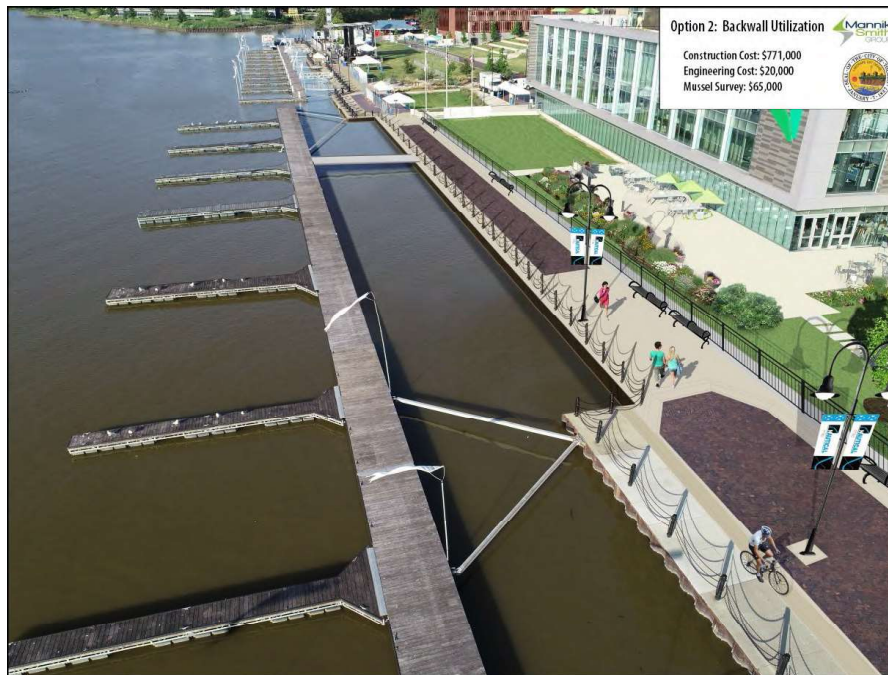
- **The sidewalk from station 2+00 to 2+25 should be closed to all traffic, including pedestrians, until the portion of wall is repaired.** (Structural)
- **The entire concrete slab and pile cap wall between station 2+25 to 4+75 should be replaced with a steel sheet pile wall to match the adjacent sections.** (Structural)

## Option 1 - Replacement with Steel Sheet Pile



The total costs for this repair option is estimated at **\$1,705,000**.

## Option 2 - Removing the Existing Front Wall and Utilizing the Backwall as the Seawall



The total costs for this repair option is estimated at **\$856,000**.