



**Erie Canal Harbor
Development
Corporation**



2017 PROPERTY CONDITION ASSESSMENT REPORT – VOLUME II – Pavement -FINAL

FOR THE

**Buffalo Outer Harbor Access and Activation Civic
Improvement Project**

901 FUHRMANN BLVD., BUFFALO, NEW YORK

August, 2017

PREPARED FOR:

Erie Canal Harbor Development Corporation

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Figure 1. Assessment Location Map

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I. EXECUTIVE SUMMARY

The pavement condition assessment of the Buffalo Outer Harbor property along Fuhrmann Blvd. was performed for Erie Canal Harbor Development Corporation (ECHDC) by Parsons Brinckerhoff (PB) from April 3, 2017 to April 7, 2017. The intent of the assessment was to document the existing condition of all surface pavements, sidewalks and other hardscape throughout the property that comprises the Buffalo Outer Harbor, from the Terminals A and B Site at the south end, to Michigan Pier at the north.

The findings of the assessment were used to provide recommendations to correct the deficiencies observed in the near term (1-year). Photographs are included to illustrate the deficiencies. The assessment was performed by visual observation and review of record plans.

For this report, the property assessed is divided into six geographic areas that include, from south to north:

- Terminals A and B
- Bell Slip
- Outer Harbor Drive
- North Event Space
- Michigan Pier
- First Buffalo Marina

The following sections describe the location and function of each area, present condition of the paved surface and needed short term remediation to correct the deficiencies identified.

II. LOCATION DESCRIPTIONS

1.0 Terminals A and B

The south end of the property assessed during this study includes the driveways, parking lots and sidewalk that provide access to the commercial and industrial buildings known as Terminal A and B.

Terminal A is located along a deep water shipping slip that extends west from the Buffalo Outer Harbor. Terminal B is a warehouse building located to the north of Terminal A, adjacent to the Outer Harbor ship wall bulkhead. Between Fuhrmann Blvd. and the slip, west of Terminal A, is the former Administration Building for Terminal A and a marine service building ("Blue Building") that houses a boat maintenance, repair and storage company. The lots adjacent to Fuhrmann Blvd. are used by the marine shop for boat storage.

Two driveway entrances provide access to the Terminals A and B area. Both are located along Fuhrmann Blvd. While the terminal buildings are currently vacant, with the exception of boat storage in Terminal A, the Blue Building has an active

business with employees and customers frequently using the south access driveway. One of the Terminal A parking lots is used by the City of Buffalo for bulk salt storage. City vehicles use the north driveway entrance to access this lot.

2.0 Bell Slip

The Bell Slip recreation area is located off of Fuhrmann Blvd. north of Terminals A and B. The recently constructed amenity provides parking and public access to the series of multi-use paths that line the Outer Harbor and Fuhrmann Blvd. The parking lot and path connection are located between Bell Slip and Fuhrmann Blvd. on the foundation of a former commercial building and boating facility. The public recreational access point is a popular destination for bicyclists, runners and kayakers. The area includes public way-finding signage.

3.0 Outer Harbor Drive

Outer Harbor Drive is an approximately 0.5 mile road that provides the primary vehicle access for the central and northern sections of the Outer Harbor property. While currently vacant, the land adjacent to this road formerly housed commercial and industrial marine facilities. Remnants of these former businesses are now only visible as overgrown gravel lots. Outer Harbor Drive is accessed from the western leg of the Fuhrmann Blvd. roundabout, via NYS Route 5 and the Buffalo Skyway.

4.0 North Event Space

At the northern terminus of Outer Harbor Dr. is a series of paved lots that sit to the south of a deep water slip. The lots are occasionally used as event space for festivals and concerts. While connected to Outer Harbor Dr., public access to the lots is also provided via a direct driveway connection to Fuhrmann Blvd. Members of the public primarily use the area surrounding the lots for fishing, bicycling and walking.

5.0 Michigan Pier

Across the slip to the north of the event space is Michigan Pier, a strip of land approximately 1,200 feet long by 200 feet wide. The east end of the pier connects to the Fuhrmann Blvd. frontage. North of Michigan Pier is a second deep water slip and Wilkeson Point, a recently constructed public park and boat launch popular for walking, sight-seeing and kayaking. Once the site of commercial marine activity, Michigan Pier is currently vacant.

6.0 First Buffalo Marina

The marina property located between the Buffalo River and Fuhrmann Blvd. across from the Times Beach Nature Preserve is used as a storage and docking facility by sail boat and other pleasure craft recreational boaters. Within the property is the Connecting Terminal Grain Elevator, currently used as a nightly public art display of illumination.

III. ASSESSMENT FINDINGS

The findings of the Outer Harbor pavement assessment are detailed in the sections below. The assessment consisted of visual observations noting surface material, size, grading, deficiencies and drainage.

1.0 Terminals A and B

The paved surfaces comprising the Terminals A and B site consist of a vast expanse of surface parking, driveways and sidewalk. These areas are described in detail below.

1.1 Primary Entrance Driveways

Access is provided to the Terminal A parking lots by two driveways that split from a common entrance at Fuhrmann Blvd. The south driveway is 600 feet long by between 20 and 80 feet wide. This driveway provides primary access to Terminal A as well as the Blue Building. The surface consists of asphalt top course and generally displays minor cracking such as longitudinal, edge and minor alligator cracking. Localized damage includes pavement grooves and potholes. At the driveway entrance from Fuhrmann Blvd., alligator cracking and potholes are present throughout.

The north driveway is currently blocked off at Fuhrmann Blvd. with concrete Jersey barrier. Since this driveway has seen less use during recent years, it has experienced less degradation. Deficiencies include longitudinal and edge cracking along with localized minor alligator cracking.

1.2 Boat Storage Lot

The lot at the southeast corner of the property, between Fuhrmann Blvd. and the Blue Building, is approximately 2.5 acres and is used for recreational boat storage by the adjacent business. The surface consists of disintegrating asphalt pavement. While adequate as a gravel lot for boat storage, the pavement has completely unraveled, allowing vegetation to grow in along pavement seams. The asphalt bond of the aggregate has nearly completely failed.

1.3 Blue Building

The driveways and parking lots leading to and surrounding the Blue Building vary in condition and material. The main driveway to the business as well as the adjacent driveways that surround the building are made up of a mix of gravel and asphalt pavement. The asphalt exhibits widespread cracking throughout and the gravel surface is uneven and potholed. Failed sections of asphalt pavement have been topped with crushed gravel to level the surface.

1.4 Secondary Entrance Driveway

The 240-foot auxiliary driveway to the Terminals A and B area was more recently constructed new in 1988. The driveway displays deficiencies

including longitudinal and alligator cracking, and minor unraveling of the top course along the edge of pavement. The secondary driveway ends at a fence and gate restricting access to the Terminal A lots.

1.5 Auxiliary Parking Lots

The Auxiliary Parking Lots consist of over 5 acres of asphalt pavement located along the northern edge of the Terminal A site and were built in 1988 with the Secondary Access Driveway. While newer than the adjacent lots, the asphalt pavement displays deficiencies such as longitudinal, transverse and alligator cracking at pavement seams. The parking lot nearest to Fuhrmann Blvd. is currently utilized by the City of Buffalo as storage for a large rock salt pile. The portions of the pavement not covered by the salt pile exhibit longitudinal, transverse and edge cracking. Significant ponding at the south end of the driveway occurs following a rain event due to a clogged catch basin. The presence of rock salt on the pavement has likely degraded the asphalt.

1.6 Terminal A Driveways

The paved driveways that surround the Terminal A building consist of an asphalt pavement top course over a base of either asphalt or concrete. Along the north and south driveways, old railroad tracks share the paved surface. As the uses of the building changed over the years, the rail service was no longer needed and the rails were paved over.

The driveway along the north face of the building exhibits longitudinal, transverse and alligator cracking along with potholes, overgrowth with weeds at the seams and at the rails, and ponding due to poor grading.

The driveway between the western face of the building and sea wall exhibits similar cracking to the north face driveway, with the addition of reflection cracks that have formed along the joints of the concrete base below. The asphalt along the seawall and areas surrounding the mooring posts has unraveled and become overgrown with weeds at the seams.

The driveway between the deep water slip and south face of the building is shared with a paved-over pair of railroad tracks. The driveway consists of asphalt pavement over a concrete base and rail bed. In many locations, the asphalt is unraveling at the edges, especially along the rails.

Last, the east face of the building is lined with a driveway that has perhaps seen the heaviest traffic volumes over the years. This section connects the southern main entrance driveway to the Terminal A driveways and Terminal B. This section exhibits widespread cracking, potholes, uneven surface and poor drainage.

1.7 Terminal B

The driveway between the Terminal B warehouse building and the sheet pile sea wall bulkhead consists of an asphalt pavement surface. The

surface condition of the main driveway section displays longitudinal and minor alligator cracking.

The edge of the seawall is lined with large mooring posts for docking vessels. The pavement between the posts is severely cracked, with the edge of pavement along the sheet pile wall having settled between 6 and 12 inches, likely due to a loss of material below.

The asphalt parking lot along the east face of Terminal B shows longitudinal and transverse cracking throughout. Along many seams, vegetation has overgrown the cracks.

2.0 Bell Slip

The recreation parking lot of Bell slip is approximately one-quarter acre. It was built within the last 10 years. The areas to the north and south of the parking lot are a former building concrete floor slab. While these areas would be suitable as the base of future pavement, no current use was observed. An asphalt multi-use path 10 feet wide crosses over the northern section of the concrete slab. While the path is in good condition, reflection cracking is present across the path wherever a concrete joint runs below.

No major cracking or other deficiencies were observed throughout the asphalt-paved multi-use path that lines Bell Slip and the water line of the Outer. .

3.0 Outer Harbor Drive

The original asphalt surface of Outer Harbor Drive extends from the Fuhrmann Blvd. roundabout, north to the Event Space parking lots. This roadway does not appear to have been maintained in several decades. There are widespread potholes and alligator cracking throughout the surface.

Several former commercial sites line both east and west sides of Outer Harbor Drive, including former parking lots, building sites and driveways. Most of these areas are completely disintegrated asphalt pavement. They now appear as areas of gravel, overgrown with weeds and vegetation. These areas have reverted to an undeveloped condition.

One former driveway is still reasonably intact, connecting Outer Harbor Drive with Fuhrmann Blvd. Reflection cracking is widespread along the joints of the concrete base below. The surface course of the asphalt section has completely weathered away. The grade of the driveway is very uneven, with exaggerated high and low points likely caused by heaving and settlement.

4.0 North Event Space

At the north end of the Outer Harbor, an approximately 3.5 acre asphalt parking lot runs adjacent to the deep water slip. This area is located at the northern edge of Outer Harbor Drive, and also connects directly to Fuhrmann Blvd. by a driveway entrance.

There is widespread longitudinal and alligator cracking as well as potholes throughout the surface. It is evident that certain sections have been repaved

more recently than others. Throughout the older eastern portion, vegetation has established along the seams of the asphalt pavement.

South of the asphalt parking lots is an area of gravel lots that is becoming overgrown with vegetation. The lots become completely overgrown toward their southern edge.

5.0 Michigan Pier

There is currently no development on Michigan Pier. The features remaining on this strip of land are a gravel road, topped with asphalt milling in small section, gravel areas of disintegrated asphalt pavement of former lots, and two concrete building foundation slabs. The building slab adjacent to Fuhrmann Blvd. has a basement level with access blocked off by a sheet of plywood over an interior stairway, and a backfilled exterior stairway. The Michigan Pier has returned to an undeveloped condition.

6.0 First Buffalo Marina

The driveway and boat storage surfaces of the marina along the Buffalo River, east of Fuhrmann Blvd. and across the street from Times Beach Nature Preserve primarily consist of compacted gravel and weathered asphalt pavement that has unraveled into gravel.

IV. PAVEMENT REHABILITATION – SHORT-TERM IMPROVEMENTS (FIRST YEAR)

The short-term recommendations discussed in the section are proposed to be implemented in the first year for the purpose of maintaining or restoring the performance of existing paved surfaces, in accordance with the owner's intended use, for a period of five years. The work recommended in the section also intends to eliminate imminent safety hazards posed to the public in publicly accessible areas. The improvements pertain to existing roads, driveways and parking lots located throughout the Outer Harbor site.

Construction estimates for short-term improvements are presented in Section VI and detailed in Appendix B.

1.0 Terminals A and B

The short-term pavement improvements recommended for the Terminals A and B area at the south end of the Outer Harbor site focus on eliminating safety hazards and providing improved access for customers of the marine service company that leases the Blue Building. Short-term repairs include the following:

- Mill and Overlay the existing south driveway apron
- Remove localized areas of loose asphalt, fill potholes with crushed stone and re-pave with chip/seal.
- Full depth asphalt surface replacement in area surrounding proposed fuel tank removal east of Blue Building

2.0 Bell Slip

No short-term pavement improvements are recommended for the Bell Slip recreation area.

3.0 Outer Harbor Drive

The intended use of Outer Harbor Drive from the Fuhrmann Blvd. roundabout to the North Events area is a travel way for public access to period festivals, concerts and other events. Two improvement alternatives are proposed for Outer Harbor Drive: resurface the roadway with a compacted gravel surface, or fill potholes with crushed gravel and apply chip and seal.

4.0 North Events Space

Planned short-term use of the North Events Space includes periodically scheduled public attractions such as concerts and festivals. First year recommendations propose the following:

- Removal of weeds growing in cracks in asphalt pavement
- Apply a truing and leveling course of asphalt pavement where needed to reduce ponding at low areas
- Crack seal and skim coat existing asphalt pavement surface

5.0 Michigan Pier

There are currently no improved paved surfaces throughout Michigan Pier. The area is absent of any development. No short-term pavement improvements are recommended.

6.0 First Buffalo Marina

The gravel and weathered asphalt driveway and parking surfaces throughout the First Buffalo Marina area are satisfactory for the functions served. No short-term improvements are recommended for this area.

V. PAVEMENT REHABILITATION – LONG-TERM IMPROVEMENTS

1.0 Terminals A and B

The scope and extent of possible long-term improvements varies greatly depending on the eventual intended use of the building complex. Assuming the existing paved surfaces require restoration of their full extent, the level of recommended repair ranges from re-surfacing areas of completely degraded asphalt with compacted gravel, to full depth asphalt pavement re-construction.

Based on a visual inspection of the existing surface, the following improvements are recommended in order to restore the existing extent of pavement:

- Weed removal, crack repair and joint sealing – 8,650 Square Yards (SY)
- Apply compacted gravel pavement – 15,200 SY

- Crack seal and skim coat – 8,200 SY
- Mill and overlay asphalt pavement – 36,600 SY
- Full depth asphalt pavement reconstruction – 55,600 SY

2.0 Bell Slip

No long-term repairs are recommended for the Bell Slip recreation area.

3.0 Outer Harbor Drive

WSP recommends either full depth reconstruction of Outer Harbor Drive, or application of a chip and seal surface.

4.0 North Events Space.

If the proposed long term use of the north end events area includes use of the existing extent of pavement, the following improvements would be required:

- Mill and overlay asphalt pavement – 11,500 SY
- Full depth asphalt pavement reconstruction – 4,000 SY

5.0 Michigan Pier

There are currently no storm drain or other utilities that serve the Michigan Pier area. The area is absent of any development. No long-term utility improvements are recommended.

6.0 First Buffalo Marina

No long-term improvements are recommended for the First Buffalo Marina driveway or parking surfaces.

VI. PAVEMENT REHABILITATION – SHORT-TERM CONSTRUCTION ESTIMATE

The following table summarized anticipated short-term pavement improvements. Refer to Appendix B for a detailed list of costs.

SUMMARY OF COSTS	
	Total
Terminals A & B	\$ 58,589.00
Outer Harbor Drive	\$ 211,160.00
North Events Space	\$ 295,144.00
Mobilization	\$ 22,596.00
Field Construction Allowance	\$ 28,245.00
TOTAL CONSTRUCTION COST	\$ 615,733.00

APPENDIX A

Photographs

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Photo A-1: Terminal A main entrance



Photo A-2: Terminal A main entrance driveway



Photo A-3: Boat storage lot



Photo A-4: Blue Building east side



Photo A-5: Blue Building south side



Photo A-6: Administration Building south side



Photo A-7: Terminal A secondary entrance



Photo A-8: Terminal A secondary driveway (looking west)



Photo A-9: Terminal A secondary driveway (looking south)



Photo A-10: Terminal A secondary driveway (looking north)



Photo A-11: Terminal A auxiliary parking lot (looking south)



Photo A-12: Terminal A auxiliary parking lot (looking west)



Photo A-13: Terminal A auxiliary parking lot asphalt degradation



Photo A-14: Terminal A auxiliary parking lot (looking west)



Photo A-15: Terminal A auxiliary parking lot drainage structure



Photo A-16: Terminal A salt storage lot (looking north)



Photo A-17: Terminal A salt storage lot ponding



Photo A-18: Terminal A east driveway



Photo A-19: Terminal A north driveway



Photo A-20: Terminal A loading docks



Photo A-21: Terminal A west driveway



Photo A-22: Terminal A west bulkhead



Photo A-23: Terminal A west driveway



Photo A-24: Terminal A south driveway



Photo A-25: Terminal A south loading docks



Photo A-26: Terminal A southeast corner



Photo A-27: Terminal B approach driveway



Photo A-28: Terminal B east driveway



Photo A-29: Terminal B loading docks



Photo A-30: Terminal B north driveway



Photo A-31: Terminal B west driveway



Photo A-32: Terminal B bulkhead



Photo B-1: Bell Slip parking lot (looking east)



Photo B-2: Bell Slip multi-use path (looking west)



Photo B-3: Bell Slip parking lot (looking south)



Photo B-4: Bell Slip (looking west)



Photo C-1: Outer Harbor Drive south end



Photo C-2: Outer Harbor Drive south end (looking north)



Photo C-3: Outer Harbor Drive (looking north)



Photo C-4: Abandoned driveway adjacent to Outer Harbor Drive



Photo D-1: North Events Space (looking north)



Photo D-2: North Events Space (looking southwest)



Photo D-3: North Events Space (looking southwest)



Photo D-4: North Events Space gravel lot (looking southwest)



Photo D-5: North Events Space (looking east)



Photo D-6: North Events Space multi-use path (looking west)



Photo E-1: Michigan Pier barricade (looking west)



Photo E-2: Michigan Pier driveway (looking west)



Photo E-3: Michigan Pier slip wall (south slip)



Photo E-4: Michigan Pier south slip wall (looking west)



Photo F-1: First Buffalo Marina north driveway



Photo F-2: First Buffalo Marina south driveway



Photo F-3: First Buffalo Marina office building



Photo F-4: First Buffalo Marina boat storage area

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APPENDIX B

Construction Estimate

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Buffalo Outer Harbor
Short Term (First Year) Pavement Improvements
Estimated Cost of Construction
Estimate
8/31/2017

	UNIT COST BACKUP						
	Quantity	Unit	Unit Cost	Total Cost	DOT Item	RSMEANS Section	Justification
South Buildings and Lots							
Mill/Overlay South Driveway Entrance	550	SY	\$ 21.00	\$ 11,550.00			
Remove Localized Loose Asphalt and replace with Chip/Seal	800	SY	\$ 17.00	\$ 13,600.00			
Full Depth Asphalt Replacement of Fuel Tank Area Surface	170	SY	\$ 67.50	\$ 11,475.00			
Outer Harbor Drive							
Compacted Gravel Roadway (Option A)	6600	SY	\$ 20.00	\$ 132,000.00			
Chip/Seal Roadway (Option B)	6600	SY	\$ 17.00				
North Events Space							
Weed Removal from Cracks	15500	SY	\$ 1.00	\$ 15,500.00			
Crack Seal and Skim Coat	15500	SY	\$ 10.00	\$ 155,000.00			
T&L Course	4000	SY	\$ 3.50	\$ 14,000.00			
SUBTOTAL				\$ 353,125.00			
Misc.							
Mobilization	0.04	LS		\$ 14,125.00			
Field Construction Allowance	0.05	LS		\$ 17,656.25			
TOTAL				\$ 384,906.25			

Design and Estimating Contingency (20%) \$76,981

Direct Cost Subtotal \$ 461,887.50

General Conditions, Bonds, Insurance, Permits, O&P (15%) \$69,283

Estimated Construction Cost \$ 531,170.63

Soft Costs (12%) \$63,740

Estimated Total Project Cost, May 2017 \$594,911.10

Escalation to May 2018 (3.5%) \$20,822

Estimated Total Project Cost May 2019 \$615,733