Executive Committee Meeting
Wednesday, July 11, 2018
City Manager's Conference Room – 8:00 am

Agenda

1. Current DDA Project Updates (Attachment 1)

2. DPW Charges 2018 (Attachment 2)

3. Chamber of Commerce Board Seat

4. Cady Street and MainCentre Parking Deck Repairs
   A. Updated Schedule (Attachment 4.A)
   B. MainCentre Report (Attachment 4.B)
   C. Main Centre Cost Estimates (Attachment 4.C)
   D. Cady Street Cost Estimates (Attachment 4.D)
   E. Maintenance Estimate Template (Attachment 4.E)
   F. Discussion on Life Cycle Expectancy
   G. Funding Strategy

5. Next Executive Committee Meeting – Wednesday, August 8, 2018

July Executive Committee Update

EV Charging Station

A ribbon cutting ceremony was held on June 28th to celebrate the installation of the EV Charging Stations. Approximately 30 people were in attendance. A reception was held after the ribbon cutting and was hosted by Up2Go. A The EV charging stations are activated! Directional signs have been installed on Center and Main Streets. DPW striped the two spaces green and stencil an EV plug in the middle of the space, similar to a handicapped parking space stencil.

Parking RFP

The City/DDA has received a draft of the MainCentre report and cost estimates for both the MainCentre and Cady Street parking decks. An updated schedule was provided by the consultants which estimates that the Cady Street report will be completed by July 13th. Mark Sampson, project manager for Carl Walker/GWI is seeking input on the Life Cycle Assessment and Maintenance schedule from the City.

After the DDA/City has the opportunity to review the report, the DDA will request a proposal from Sampson to provide services to develop bid specifications for the project, assist in the bidding process and provide construction inspection services.

Downtown Murals

Applications for the DIA's Inside/Outside (loan) Program, which we've done in prior years are due in September. Design Committee member Chuck Murdoch has volunteered to fill out the application. On-line search showed no other museum in the state has such a program, as an alternative.

Murdoch will also investigate the cost of installing a mural on the side of Lucy & The Wolf building. He will reach out to the Village Workshop to learn more about their installation.

Employee Hours and Gross by GL Number Report
For Payroll ID: 102

Employee:	Reg Hours	Gross	
000429 - HUNTER, KIRK D	1.5	$ 38.84	Walk thru cameras
000431 - AHOLA, TERRY A	2	$ 64.00	EV Supplies
000432 - LAPENTA, JOHN P	1.5	$ 36.00	Walk thru cameras
370-753-706.000	5	$ 138.84	
Grand Totals:	5	$ 138.84	

Northville Parking Structure
Evaluations 2018
Schedule
June 21, 2018

TASK	SCHEDULE
Start of Design Development	April 30, 2018
Field Survey & Meeting	May 10, 2018
Issue MainCentre Draft Report	June 29, 2018
MainCentre Comments Back to WGI	July 11, 2018
Issue CADY Draft Report	July 13, 2018
Issue MainCentre Final Report	July 18, 2018
CADY Comments Back to WGI	July 20, 2018
Issue CADY Final Report	July 25, 2018

CITY OF NORTHVILLE

MAINCENTRE PARKING STRUCTURE | DRAFT REPORT

24183249.00 | June 128, 2018 | Engineering Condition Assessment

WGI MICHIGAN, INC.

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I. INTRODUCTION

In accordance with our proposal dated March 29, 2018, ***WGI*** has completed an Engineering Condition Assessment of the MainCentre Parking Structure in Northville, Michigan. The primary objectives of this assessment were to assess the general condition of the structure, identify items requiring repair, maintenance, and/or protection, and provide an estimate of preliminary construction costs for the recommended repairs prioritized into a short-term and long-term plan.

II. STRUCTURE DESCRIPTION

The MainCentre Parking Structure is located at the southeast corner of the Cady Street and Center Street intersection in Northville, MI. The parking structure was built in 1994. The two-bay structure consists of 1 supported level and one slab-on-grade level with entrances and exits at each level. The entrance and exit to the Upper Level is on the north side of the parking structure from Cady Street and has no access controls. The entrance and exit to the Lower Level is on the south side of the parking structure from a service drive and has controlled access with card readers.

The typical structural plan dimensions measure approximately 117 feet in the east-west direction and 254 feet in the north-south direction. Each level covers approximately 29,500 square feet for a total of 59,000 square feet. The parking structure provides approximately 182 parking spaces.

The structural system is composed of precast concrete double-tees, beams, and columns. Each precast concrete double-tee spans 58 feet in the east-west direction across the bays. The double-tees are 9 feet wide, which forms the column spacing of 36 feet in the north-south direction. There is a 3-inch thick cast-in-place concrete topping on the tees. The double-tees are supported by precast inverted tee beams on the interior and precast spandrels on the exterior. Precast concrete columns support the beams and spandrels. Slab-on-grade consists of asphalt paving.

Stair towers are located at the northeast and southwest corners of the structure. The northeast stair tower is fully enclosed and has one elevator. The stair tower has four flights of stairs above the Upper Level, leading to a pedestrian bridge which provides access to the MainCentre Building to the north. The southwest stair tower is not covered and consist of aluminum members.

III. DOCUMENT REVIEW

We reviewed the following documents:

- Original Design Drawings by Rich and Associates, Inc. dated March 12, 1994.
- Specifications and drawings for the "Cady and M.A.G.S. Deck Restoration" by Rich and Associates, Inc. dated July 2005.
- Proposal for the MainCentre Parking Structure repairs by Pullman dated April 18, 2013.
- Drawing for the "Northville Parking Deck Spandrel Repair" by Desai Nasr Consulting Engineers dated May 27, 2015.

From these documents, we noted the following pertinent information:

- Original Design Drawings dated 1994

- The building was designed in accordance with the 1993 edition of the BOCA Basic National Building Code.
- The Upper Level was designed for a 50 psf live load plus 30 psf snow load. The stairs were designed for a 100 psf live load.
- Spread footing design was based on a soil bearing capacity of 3,000 psf.
- The 28-day compressive strength for the cast-in-place concrete slab, topping, columns, wall, and footings was specified to be a minimum of 4,000 psi.
- The 28-day compressive strength for the precast was specified to be a minimum of 6,000 psi.
- The minimum yield strength of all reinforcing steel was specified at 60,000 psi.
- Minimum concrete cover specified for reinforcing was as follows: footings – 3", columns – 1.5", from top of slab and beams – 1.5" for #5 and smaller, and 2" for others.
- The reinforcement for the concrete topping was specified to be WWF 6X6-W2.9 X W2.9. Added reinforcement in the concrete topping was specified to be the following: #4 @ 16" by 10' across the inverted tee-beam at column line B; and 2 - #5 in the perimeter concrete wash parallel along column lines A, C, and 9.
- Some of the precast connections were specified to be stainless steel, such as the flange connectors.
- Concrete masonry units were specified to be normal weight units with a minimum compressive strength of 1,500 psi.
- Mortar was specified to Type S with an average compressive strength of 1,800 psi for a 2" cube at 28 days.
- Deck coating was specified to be installed on the Upper Level floor surface above the Inverted tee-beams at column line B.
- An oil interceptor is located at the Lower Level near column line B.7 - 4.
- The southwest stair was specified to be metal frame with concrete in-fill treads.

- Specification and Drawings for Cady and M.A.G.S. Deck Restoration dated July 2005
  - Small quantities of concrete delaminations were specified to be repaired.
  - Small quantities of joint sealants were specified to be repaired.
  - A concrete sealer (40% silane) was specified to be installed on the entire Upper Level.
  - All the deck coating was specified to be removed and replaced.
  - Expansion joint gland at the Upper Level entry was specified to be replaced.
  - All the metal railings were specified to be painted.
  - The southwest stair was specified to be replaced with an anodized aluminum stair.
  - The brick stair retaining wall at the northwest corner was specified to be rebuilt.
  - The fire protection standpipe system was specified to be repainted.
  - The walls and ceilings of the northeast stair tower were specified to be repainted.

- Pullman's Proposal for the MainCentre Parking Structure repairs dated April 18, 2013
    - Provided a quote of $4,985 to repair 234 ft of joint sealants and 24 ft of Jeene expansion joint at the Upper Level entrance. This work was performed per conversation with Pullman.
    - Provided a quote of $12,390 to remove and replace 3,300 ft of joint sealants. This work was not performed per conversation with Pullman.
- Drawing for the Northville Parking Deck Spandrel Repair dated May 27, 2015.
    - A precast concrete spandrel with brick veneer was specified to be repaired. The damage appeared to be caused by corrosion of the reinforcement and was located on the east elevation.

IV. GENERAL CONDITION REVIEW

On May 10, 2018, WGI completed a review of the MainCentre Parking Structure. The review included a visual examination of floor and ceiling surfaces, structural elements and their supports, and stair towers to assess the current condition and locate areas of deterioration and/or deficiencies. A chain drag survey was performed at the supported slab surfaces to determine the extent of slab delamination due to the corrosion of the embedded reinforcing steel. The following is a summary of our observations.

Floor Slabs

A representative chain drag survey of the floor slabs was performed to locate and quantify concrete delaminations. A delamination is a horizontal fracture beneath the surface of the concrete. In general, slab delaminations are caused by corrosion of the embedded reinforcing steel. Rust, which is the byproduct of the corrosion process, has a volume several times that of the original steel. The volume change created by corrosion generates pressures on the surrounding concrete that eventually becomes sufficient to cause internal fracturing of the concrete and the loss of bond of the corroded reinforcing steel with the surrounding concrete.

The chain drag survey of the floor slabs revealed approximately 400 square feet of slab delaminations at the Upper Level, which is approximately 1.4% of the supported slab. Most of the top-of-slab delaminations are small, approximately 1 to 4 square feet in size. Many of the delaminations are caused by the corrosion of the welded wire fabric which appears to have very little concrete cover. Floor slab delaminations should be repaired to help maintain the structural integrity of the facility and eliminate safety hazards such as trip hazards.

Water ponding was observed at the Upper Level Adjacent to the southwest stairs. This ponding could be relieved by minor re-profiling or installing a supplementary floor drain.

Tee Flanges/Stems

The double tees appear to be in good condition. We estimate a total of 20 square feet of tee flange delaminations, with most of them approximately 1 to 3 square feet in size. The delaminations are typically located along leaking joints that allow water and chlorides to corrode embedded reinforcement. These delaminations should be repaired to help maintain the structural integrity of the facility and eliminate safety issues such as falling concrete.

The tee stems appear to be in good condition. No delaminations were noted at the stems.

Beams

The inverted tee beams running column line B appear to be in good condition with a total of 26 square feet of delaminations. Most of the delaminations are small, approximately 1 to 2 square feet in size and primarily located near the columns. The delaminations are typically located at leaking joints that allow water and chlorides to corrode embedded reinforcement. These delaminations should be repaired to help maintain the structural integrity of the facility and eliminate safety issues such as falling concrete.

Columns

The columns appear to be in good condition with a total of 40 square feet of delaminations. Most of the column delaminations are small, approximately 4 to 5 square feet in size and primarily located along column line B at both the Upper and Lower Levels.

The delaminations at the Lower Level are typically located at leaking joints that allow water and chlorides to corrode embedded reinforcement. These delaminations should be repaired to help maintain the structural integrity of the facility and eliminate safety issues such as falling concrete.

The interior columns at the Upper Level, a total of three, are used to support the light posts. These columns have multiple hairline cracks, which may be from alkali-silica reaction (ASR). To help protect these columns we would recommend installing an elastomeric coating.

Spandrels

The precast concrete spandrels with brick veneer are located at the perimeter of the Upper Level. The spandrels appear to be in good condition with a total of 24 square feet of delaminations. Most of the delaminations are small, approximately 1 to 2 square feet in size and primarily located near the columns. The delaminations at the interior face are typically caused by the corrosion of the reinforcement with shallow concrete cover. The deterioration at the exterior face appear to be caused by failed sealants, which allows moisture to penetrate behind the brick veneer. The moisture can then attack the concrete causing corrosion of the reinforcement, especially if there is shallow concrete cover on this face. Also, once moisture is behind the brick, freeze-thaw can cause damage to the concrete and the brick.

Walls

The cast-in-place concrete walls are located at the perimeter of the Lower Level. The walls appear to be in good condition with a total of 20 square feet of delaminations. Most of the wall delaminations are small, approximately 4 to 6 square feet in size. The wall at the north end has multiple leaking cracks, which has helped cause the delaminations. Also, the expansion joint above at the entrance has failed causing leaking on to the wall. The cracks and expansion joint needs be sealed to protect this wall.

Masonry

The exterior façade consists of precast concrete and brick masonry. The brick masonry appears to be in good condition, with some small areas deterioration observed. Spalls were observed at the brick at the steps in the northeast corner and on the east face of the pedestrian bridge. All loose bricks should be repaired to help prevent future deterioration.

The brick stair retaining wall at the northwest corner was rebuilt in 2005. A crack in the north face of the wall has developed. The cove joint sealant between the brick and steps has failed, causing moisture to enter the backside of the wall. Thermal movement of the concrete steps and freeze-thaw has most likely caused this crack.

Curbs

The concrete curbs are in good condition with approximately 18 square feet of delaminations noted at the Upper Level. At some locations the deterioration is undermining the curb. All of the curb delaminations were observed at the entrance/exit. The concrete curbs help direct water to the floor drains and provides a walking surface for pedestrians. These delaminations should be repaired to prevent potential trip hazards and to protect the embedded steel reinforcement.

Asphalt

The Lower Level is at grade and the floor surface consists of asphalt. The asphalt throughout this level is in good condition, with approximately 240 square feet of deterioration. The paving seams are opening up which may lead to future deterioration of the asphalt. The asphalt should be repaired to reduce future deterioration and trip hazards.

Joint Sealants

It is our understanding that a small quantity of the tee-to-tee joint sealants were repaired in 2005 and 2013. Failed tee-to-tee joint sealants and active leaking were observed throughout the Upper Level.

Cove joint sealants are typically installed at the slab-to-wall joints and at the slab-to-curb joints at the perimeter of the structure. The cove joint sealants are in poor condition and appear to have been damaged by snow plows.

Vertical wall sealants at the interior and exterior of the structure are in poor condition. Cracked and weathered sealants were observed throughout the structure. Most of the wall sealants are located at the columns.

Most of these sealants appear to be very old and are at the end of their useful life. The typical service life for joint sealants is 7 to 10 years, especially at the roof level. Sealants should be repaired to prevent the infiltration of moisture and chlorides into the structural elements below and to prevent leaking onto vehicles and pedestrians at the Lower Level.

Expansion Joints

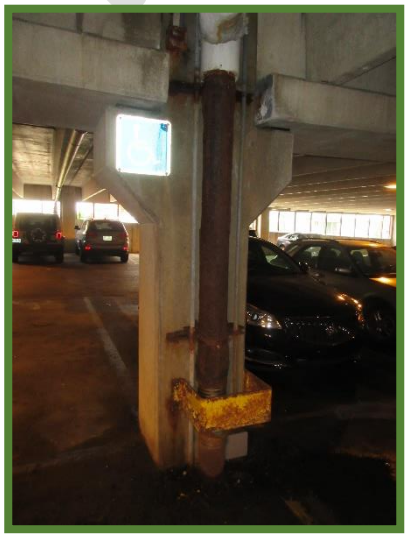
There is an expansion joint running east-west at the entrance/exit to the Upper Level. The purpose this joint is to provide isolation from the structural slab and the foundation which allows movement to occur without causing damage to the structure. The joint consists of steel angles with a compression seal (Jeene Joint). The gland was replaced in 2013. The gland has failed causing leaking below and corrosion damage to the foundation wall. This gland should be replaced to prevent water from damaging the structural elements.

Surface Treatments

Deck coating has been installed at the Upper Level slab directly above the inverted tee beams at column line B and along the north edge of the structure. It is our understanding that the deck coating was replaced in the 2005 project. The deck coating appears to be in fair condition with many worn areas, especially in the drive lanes. All of the deck coating should be recoated to help protect the underlying structural concrete elements.

It is our understanding that a 40% silane sealer was applied to the Upper Level slab surfaces during the 2005 repair project. The effective service life of a 40% silane sealer is typically 4 to 5 years.

Mechanical



Cast iron storm drainage piping (vertical risers) are at three locations in the structure, all along column line B. Corroded and damaged cast iron piping were noted at all locations, caused by leaking joints above. The piping should be replaced to maintain proper water removal from the structure. The piping could be replaced with PVC to eliminate the corrosion damage, if allowed by the local codes.

The steel pipe guards protecting these risers were observed to be corroded. As a minimum, these should be cleaned and repainted or better yet, replaced with new galvanized pipe guards.

The standpipe system has been painted, which helps protect the steel from corrosion. Most of this paint is deteriorating, causing corrosion. The standpipe system should be cleaned and repainted. The system should also be tested, if it has not been recently, to make sure it is working properly.

Electrical

HPS light fixtures at the Lower Level are located near the edge of each drive lane at a spacing of 30 feet. The fixtures are surface mounted to the underside of the slabs and are serviced by exposed electrical conduit. The lighting system appears to be in good working order. WGI can conduct a lighting survey to review existing lighting levels and make recommendations to improve (increase) lighting levels while using more energy efficient fixtures. LED lighting technology is available that could provide energy savings as well as a longer bulb life.

Electrical junction boxes and conduits were noted to be corroded due to leaking joints above. Some of the boxes were missing covers exposing the wires. The conduits and junction boxes should be repaired to prevent future deterioration and possible electrocution.

Stair Towers

The stair towers are in relatively good condition. The northeast stairs consist of metal pans with concrete infill and the southwest stairs consist of anodized aluminum. The southwest stairs originally consisted of metal pans with concrete infill, but was replaced in 2005.

The following items were noted at the northeast stair tower:

- Cracks in many of the concrete treads and landings, which need to be sealed.
- Paint stained and peeling at some of the concrete walls.
- Handrails and metal pans have some corrosion.
- Door hinge badly corroded at the Upper Level.
- Roof appears to have a leak.
- Failed sealant at the east window at the Upper Level.
- Paint peeling from the interior ceiling of the pedestrian bridge.

The following items were noted at the southwest stair tower:

- Paint peeling from the rail around the stairs at the Upper Level.
- One riser missing from the stairs.
- Bottom of door frame corroded at the Lower Level.

V. DISCUSSION

This structure is in good condition, but all structures require maintenance and preventative measures to obtain a long-term service life, especially in the harsh environment of Michigan. The MainCentre Parking Structure is subject to extreme weather conditions, temperature fluctuations, and the widespread use of de-icing road salts during the winter months which create an ideal environment for deterioration of the embedded reinforcing steel, exposed metal components, and concrete components of the parking structure.

As with most parking structures, the largest portion of anticipated future maintenance and repair costs are associated with the slab system. This is due to the direct exposure of these elements to water, deicing chemicals (chlorides), and vehicular traffic. The results of the visual observations and the chain drag survey indicate that the intrusion of water and chlorides have caused continued deterioration of the floor system. Even though chloride ion testing has not been performed, it is our assumption based on the visible evidence, that the chloride ion concentrations are above the threshold to cause corrosion of reinforcement. Therefore, the potential for continued corrosion and accelerated deterioration of the floor slab is high.

In a precast structure, the topping not only functions as a wearing surface for the double tees, but it also provides a layer of protection. Moisture and chloride ions will have to diffuse through the topping before reaching the underside of the double tees and the beams, walls, and columns, below. However, if there is leaking through any joints or cracks, the joint will serve as a direct path to the underlying structural system for moisture and chloride ions. Thus, it is of vital importance to maintain the integrity of the joint sealants, expansion joints, and deck coating.

Since the existing chloride exposure cannot be easily removed from the floor slab concrete, our recommended approach would be to maintain existing waterproofing systems and introduce protection methods at areas of the slab that are currently unprotected to minimize future corrosion induced deterioration and reduce infiltration of moisture and chlorides. This protection method would involve recoating the existing deck coating and an application of one of the following at the remaining slab areas: a clear penetrating silane sealer; a clear penetrating silane sealer with a corrosion inhibitor; a deck coating; or a deck coating with corrosion inhibitor. The following provides a comparison of each.

Concrete Sealer

The application of a concrete sealer has a lower initial implementation cost but has less long-term durability. A concrete sealer is a water repellant, but does not provide 100% waterproofing. Actual in-place performance is difficult to verify, however, it is anticipated that the sealer will provide an 85% water and chloride barrier. The sealer does not span cracks. Reapplication every 8 to 10 years is recommended to maintain effectiveness if a 100% silane sealer is applied.

Advantages of Concrete Sealer:

- Lower initial construction cost.
- Reduces moisture and chlorides into the slab by 85%.
- Reduces rate of corrosion.
- Shorter construction schedule when compared to deck coating.

Disadvantages of Concrete Sealer:

- Continued corrosion of the embedded reinforcing steel at patch perimeter.
- Reapplication of sealer required every 8 to 10 years.

- Does not stop the corrosion process.
- Does not waterproof the slab, especially at cracks.

Concrete Sealer with Corrosion Inhibitor

This option is similar to above, but includes a corrosion inhibitor. The application of a concrete sealer with a corrosion inhibitor reduces corrosion significantly. The manufacturers will provide a warranty against corrosion delaminations at the top side for 10 years. The reapplication of the corrosion inhibitor will depend on the results from periodic testing, will be most likely every 10 to 15 years. The reapplication of the 100% silane sealer is recommended every 8 to 10 years to maintain effectiveness.

Advantages of Concrete Sealer with Corrosion Inhibitor:

- Lower initial construction cost then deck coating.
- Reduces moisture and chlorides into the slab by 85%.
- Reduces rate of corrosion by 90%.
- Reduces maintenance and future repair costs due to corrosion damage at the top side.
- Shorter construction schedule when compared to deck coating.
- Ten-year warranty against floor delaminations.

Disadvantages of Concrete Sealer with Corrosion Inhibitor:

- Reapplication of sealer required every 8 to 10 years.
- Will require periodic testing and reapplication of corrosion inhibitor.
- Does not waterproof the slab, especially at cracks.

Deck Coating

The application of a deck coating effectively waterproofs the floor slab and reduces moisture and chloride penetration by 98%, significantly reducing the rate of corrosion of the embedded reinforcing steel. Deck coatings can bridge small cracks with limited movement. The application of a deck coating to the floor slab will likely increase the longevity of the structure (compared to sealer) by minimizing moisture and chloride penetration into the slab and help protect the joint sealants.

We have estimated a 5 to 7 year life expectancy for the deck coating on this structure if it is properly maintained. At the end of 5 to 7 years the deck coating will need to be reapplied over the entire floor area. We anticipate a reduction in structural repair costs during this time. Maintenance includes corrosion-damaged slab repairs in isolated areas and reapplication of deck coating.

Advantages of Deck Coating:

- Provides flexible waterproofing bridge over slab cracks and control joints.
- Provides improved waterproofing characteristics when compared to sealers.
- Helps protect joint sealants.
- Reduces maintenance and future repair costs.
- Reduces rate of corrosion more effectively than concrete sealer.

Disadvantages of Deck Coating:

- Direct wear on the waterproofing system would limit the anticipated life of the waterproofing system.
- Deck coating prone to snow plow damage at the roof levels.
- Continued corrosion of the embedded reinforcing steel at patch perimeter.
- Reapplication of the coating required every 5 to 7 years.
- Longer construction schedule when compared to sealers.

Deck Coating plus Corrosion Inhibitor

The application of a deck coating plus a corrosion inhibitor gives you the best of both options. The deck coating effectively waterproofs the floor slab and reduces moisture and chloride penetration by 98%, and the corrosion inhibitor significantly reduces the corrosion rate.

It is important to note that the structure will continue to deteriorate despite any repair and maintenance program. All structures require maintenance and preventative measures to obtain a long-term service life, especially in the harsh environment in Michigan. Therefore, WGI recommends periodic reviews of the structure to update its condition, and verify that it remains on course to achieve the desired service life.

VI. RECOMMENDATIONS

To prolong the service life of the structure we recommend the following repairs be performed:

Division 3 - Concrete

3.1 *Top of Slab Repair* – This item includes repairing the delaminated/spalled concrete in the concrete topping at the Upper Level.

3.2 *Tee Flange Repair* – This item includes repairing delaminated concrete at the precast tee flanges.

3.3 *Beam Repair* – This includes the repair of beam delaminations at the underside of the Upper Level.

3.4 *Column Repair* – This item includes the repair of column delaminations throughout the structure.

3.5 *Spandrel/Wall Repair* - This item includes repairing delaminated concrete at the spandrels/walls.

3.6 *Curb Repair* - This item includes the repair of curb delaminations at the entrance/exit at the Upper Level.

Division 4 - Masonry

4.1 *Brick Repair* – This item includes repairing the deteriorated bricks at the pedestrian bridge and the northwest stairs.

4.2 *Repoint Mortar Joints* – This item includes repointing the failed/deteriorated mortar joints at the masonry wall at the perimeter of the parking structure and pedestrian bridge.

Division 5 - Metals

5.1 *Install Stair Riser* – This item includes installing a stair riser that is missing at the southwest stairs.

5.2 *Repair Doors* – This item includes replacing the corroded door hinge at the northeast stair tower and repairing corroded door frame at the southwest stairs

Division 7 - Waterproofing

7.1 *Rout & Seal Cracks* – This item includes routing and sealing all cracks in the concrete floor topping.

7.2 *Remove & Replace Control Joint Sealants* – This item includes removing and replacing all tee-to-tee control joint sealants and all other construction/control joint sealants.

7.3 *Remove & Replace Cove Joint Sealants* – This item includes removing and replacing all cove joint sealants.

7.4 *Remove & Replace Interior Wall Sealant* – This item includes removing and replacing all wall joint sealants at the interior of the structure.

7.5 *Remove & Replace Exterior Wall Sealant* – This item includes removing and replacing all joint sealants at the façade of the structure.

7.6 *Remove & Replace Expansion Joint Sealant* – This item includes removing and replacing the expansion joint gland at the entrance and exit to the Upper Level.

7.7 *Recoat Deck Coating* – This item includes recoating all the existing deck coating.

7.8 *Inject Wall Cracks* – This includes injecting the leaking wall cracks at the north end of the Lower Level with chemical grout.

7.9 *Crack Repair at Treads/Landings* – This item includes sealing the cracks in the concrete treads and landings at the northeast stair tower.

7.10 *Roof Repair* – This item includes repairing the leak in the northeast stair tower roof.

7.11 *Remove & Replace Wall Sealant* – This item includes removing and replacing the failed joint sealant at the east window of the northeast stair tower.

Division 9 - Finishes

9.1 *Clean & Paint Perimeter Railings* – This item includes cleaning and painting the metal railings at the perimeter of the structure.

9.2 *Clean & Paint Cyclone Fence* – This item includes cleaning and painting the cyclone fence at the perimeter of the structure.

9.3 *Clean & Paint Columns* – This includes cleaning and painting the interior columns at the Upper Level with an elastomeric coating to help protect it from ASR.

9.4 *Clean & Paint Standpipe System* – This item includes cleaning and painting the standpipe system at both levels to help protect it from corrosion.

9.5 *Clean & Paint Pipe Guards* – This item includes cleaning and painting the pipe guards at the Lower Level to help protect them from corrosion.

9.6 *Touch-up Paint at Northeast Stair Tower* – This item includes touching up the paint on the damaged portions of the walls, stair pans, and handrails as needed at the northeast stair tower.

9.7 *Touch-up Paint on Pedestrian Bridge Ceiling* – This item includes touching up the paint on the damaged portions of the ceiling at the pedestrian bridge as needed.

Division 22 - Mechanical

22.1 *Supplemental Floor Drain* – This item includes installing an additional drain and associated piping where water is ponding along the southwest stairs.

22.2 *Replace Damaged Storm Drainage Piping* – This item includes replacing the damaged vertical risers at the Lower Level.

Division 26 - Electrical

26.1 *Replace Damaged Conduit & Junction Boxes* – This item includes replacing the corroded electrical conduits and junction boxes at the Lower Level.

Division 32 – Exterior Improvements

32.1 *Asphalt Repair* – This includes repairing the deteriorated asphalt at the Lower Level.

32.2 *Seal Asphalt Cracks/Joints* – This includes routing and sealing all cracks/joints in the asphalt at the Lower Level.

32.3 *Pavement Markings* – This includes repainting the pavement markings after the application of a concrete sealer or a deck coating.

32.4 *Install Railing Post Covers* - This includes installing post covers on the railing at the Upper Level where they are missing.

32.5 *Fence Repair* - This includes repairing the fence.

Optional Items:

O1. Concrete Sealer – This includes installing a silane sealer to the Upper Level slab at areas that are not covered by deck coating.

O2. Concrete Sealer with Corrosion Inhibitor– This includes installing a silane sealer with corrosion inhibitor to the Upper Level slab at areas that are not covered by deck coating.

O3. Deck Coating – This includes installing a full system deck coating to the Upper Level slab at areas that are not covered by deck coating.

O4. Deck Coating plus Corrosion Inhibitor – This includes installing a full system deck coating plus corrosion inhibitor to the Upper Level slab at areas that are not covered by deck coating.

O5. Replace Light Fixtures - LED lighting technology is available that could provide energy savings as well as a longer bulb life. WGI can run lighting software to determine if the fixture spacing is adequate for the IES recommendations. The rate of return would most likely be in 3 to 5 years.

VII. COST ESTIMATE

We have prepared an opinion of cost for the recommended and optional repairs for the MainCentre Parking Structure to assist you with developing a budget for implementing the repairs.

Base Cost Estimate

Work Item No.	Work Item Description	Units	Estimated Quantity	Unit Cost	Cost
Division 0 & 1 - General Conditions					
1.1	Contractor Mobilization (5%)	L.S.	n/a	n/a	$ 9,100
1.2	Contractor General Requirements (10%)	L.S.	n/a	n/a	$ 18,100
Division 3 - Concrete					
3.1	Top of Slab Repair	S.F.	392	$ 40.00	$ 15,680
3.2	Tee Flange Repair (Ceiling)	S.F.	20	$ 100.00	$ 2,000
3.3	Beam Repair	S.F.	26	$ 100.00	$ 2,600
3.4	Column Repair	S.F.	40	$ 100.00	$ 4,000
3.5	Spandrel/Wall Repair	S.F.	36	$ 100.00	$ 3,600
3.6	Curb Repair	S.F.	18	$ 100.00	$ 1,800
Division 4 - Masonry					
4.1	Brick Repair	EA.	40	$ 20.00	$ 800
4.2	Re-Point Mortar Joints	L.F.	180	$ 20.00	$ 3,600
Division 5 - Metals					
5.1	Install Stair Riser at SW Stairs	EA.	1	$ 1,000.00	$ 1,000
5.2	Repair Doors	EA.	2	$ 1,000.00	$ 2,000
Division 7 - Waterproofing					
7.1	Rout & Seal Cracks	L.F.	100	$ 5.00	$ 500
7.2	Remove & Replace Control Joint Sealants	L.F.	3,800	$ 5.00	$ 19,000
7.3	Remove & Replace Cove Joint Sealants	L.F.	910	$ 5.00	$ 4,550
7.4	Remove & Replace Interior Wall Sealants	L.F.	120	$ 10.00	$ 1,200
7.5	Remove & Replace Exterior Wall Sealants	L.F.	220	$ 10.00	$ 2,200
7.6	Remove & Replace Expansion Joint Sealant	L.F.	24	$ 120.00	$ 2,880
7.7	Install Deck Coating - Recoat	S.F.	3,400	$ 3.00	$ 10,200
7.8	Inject Wall Cracks	L.F.	80	$ 50.00	$ 4,000
7.9	Crack Repair at Treads/Landings	L.F.	70	$ 30.00	$ 2,100
7.10	Roof Repair at North Stair Tower	L.S.	1	$ 2,000.00	$ 2,000
7.11	Remove & Replace Wall Sealants	L.F.	20	$ 15.00	$ 300
Division 9 - Finishes					
9.1a	Clean & Paint Railing (Green) at Lower Level	L.F.	40	$ 40.00	$ 1,600
9.1b	Clean & Paint Railing (Green) at Upper Level	L.F.	690	$ 30.00	$ 20,700
9.1c	Clean & Paint Railing (Green) at SW Stairs	L.F.	40	$ 30.00	$ 1,200
9.1d	Clean & Paint Railing (Green) at Exterior Stair/Ramp	L.F.	120	$ 20.00	$ 2,400
9.2	Clean & Paint Fencing (Black)	S.F.	3,200	$ 10.00	$ 32,000
9.3	Clean & Paint Columns	S.F.	120	$ 10.00	$ 1,200
9.4	Clean & Paint Standpipe System	L.F.	270	$ 15.00	$ 4,050
9.5	Clean & Paint Pipe Guards	EA.	3	$ 300.00	$ 900
9.6	Touch-up Paint at North Stair Tower	L.S.	1	$ 4,000.00	$ 4,000
9.7	Touch-up Paint at Ped. Bridge Ceiling	L.S.	1	$ 2,000.00	$ 2,000
9.8	Clean & Paint North Entry (Green)	L.S.	1	$ 2,000.00	$ 2,000
Division 22 - Mechanical					
22.1	Supplemental Floor Drain	EA.	1	$ 3,500.00	$ 3,500
22.2	Remove & Replace Risers	L.F.	30	$ 80.00	$ 2,400
Division 26 - Electrical					
26.1	Remove & Replace Junction Box	EA.	3	$ 300.00	$ 900
Division 32 - Exterior Improvements					
32.1	Asphalt Repair	S.F.	240	$ 20.00	$ 4,800
32.2	Seal Asphalt Cracks/Joints	L.F.	1,900	$ 2.50	$ 4,750
32.3	Paint Pavement Markings	L.S.	1	$ 4,000.00	$ 4,000
32.4	Install Railing Post Covers	EA.	20	$ 50.00	$ 1,000
32.5	Fence Repair	L.S.	1	$ 1,000.00	$ 1,000
	Construction Cost Subtotal				**$ 207,610**
	Construction Contingency (10%)				$ 20,770
	Probable Construction Cost Budget				$ 228,380
	Soft Costs (20%)				$ 45,700
	Total Probable Construction Cost Budget				**$ 274,100**
PROTECTION OPTIONS					
O1	Concrete Sealer	S.F.	26,000	$0.45	$11,700.00
O2	Concrete Sealer with Corrosion Inhibitor	S.F.	26,000	$1.10	$28,600.00
O3	Deck Coating	S.F.	26,000	$3.25	$84,500.00
O4	Deck Coating with Corrosion Inhibitor	S.F.	26,000	$4.35	$113,100.00
O5	Replace Light Fixtures	L.S.	1	$24,000.00	$24,000.00

VIII. LIMITATIONS

The recommended restoration and protection of the parking structure can be performed and the rate of further deterioration reduced. However, we cannot guarantee that further deterioration will not take place with continued service-related exposure. Effective ongoing maintenance can significantly reduce long-term maintenance costs. Monitoring of the parking structure can assist in scheduling future maintenance.

Specific repair procedures are not part of this evaluation. This report defines items in need of repair and presents conceptual procedures. Construction Documents are required to address all aspects of materials selection and methods for repair of the parking structure. Repair cost projections are based on deterioration quantities identified during our review. Quantities and costs are not intended to define a guaranteed maximum cost, and variations in final quantities should be anticipated.

The evaluation and restoration of existing structures require that certain assumptions be made regarding existing conditions. Since some of these assumptions may not be confirmed without expending additional sums of money and/or destroying otherwise adequate or serviceable portions of the building, WGI cannot be held responsible for latent deficiencies which may exist in the structure, but which have not been discovered within the scope of this evaluation.

WGI did not review the structure for conformance with the Americans with Disabilities Act (ADA).

MainCentre Parking Structure
2018 Cost Estimate - DRAFT
June 27, 2018

Work Item No.	Work Item Description	Units	Estimated Quantity	Unit Cost	Cost
Division 0 & 1 - General Conditions					
1.1	Contractor Mobilization (5%)	L.S.	n/a	n/a	$ 9,100
1.2	Contractor General Requirements (10%)	L.S.	n/a	n/a	$ 18,100
Division 3 - Concrete					
3.1	Top of Slab Repair	S.F.	392	$ 40.00	$ 15,680
3.2	Tee Flange Repair (Ceiling)	S.F.	20	$ 100.00	$ 2,000
3.3	Beam Repair	S.F.	26	$ 100.00	$ 2,600
3.4	Column Repair	S.F.	40	$ 100.00	$ 4,000
3.5	Spandrel/Wall Repair	S.F.	36	$ 100.00	$ 3,600
3.6	Curb Repair	S.F.	18	$ 100.00	$ 1,800
Division 4 - Masonry					
4.1	Brick Repair	EA.	40	$ 20.00	$ 800
4.2	Re-Point Mortar Joints	L.F.	180	$ 20.00	$ 3,600
Division 5 - Metals					
5.1	Install Stair Riser at SW Stairs	EA.	1	$ 1,000.00	$ 1,000
5.2	Repair Doors	EA.	2	$ 1,000.00	$ 2,000
Division 7 - Waterproofing					
7.1	Rout & Seal Cracks	L.F.	100	$ 5.00	$ 500
7.2	Remove & Replace Control Joint Sealants	L.F.	3,800	$ 5.00	$ 19,000
7.3	Remove & Replace Cove Joint Sealants	L.F.	910	$ 5.00	$ 4,550
7.4	Remove & Replace Interior Wall Sealants	L.F.	120	$ 10.00	$ 1,200
7.5	Remove & Replace Exterior Wall Sealants	L.F.	220	$ 10.00	$ 2,200
7.6	Remove & Replace Expansion Joint Sealant	L.F.	24	$ 120.00	$ 2,880
7.7	Install Deck Coating - Recoat	S.F.	3,400	$ 3.00	$ 10,200
7.8	Inject Wall Cracks	L.F.	80	$ 50.00	$ 4,000
7.9	Crack Repair at Treads/Landings	L.F.	70	$ 30.00	$ 2,100
7.10	Roof Repair at North Stair Tower	L.S.	1	$ 2,000.00	$ 2,000
7.11	Remove & Replace Wall Sealants	L.F.	20	$ 15.00	$ 300
Division 9 - Finishes					
9.1a	Clean & Paint Railing (Green) at Lower Level	L.F.	40	$ 40.00	$ 1,600
9.1b	Clean & Paint Railing (Green) at Upper Level	L.F.	690	$ 30.00	$ 20,700
9.1c	Clean & Paint Railing (Green) at SW Stairs	L.F.	40	$ 30.00	$ 1,200
9.1d	Clean & Paint Railing (Green) at Exterior Stair/Ramp	L.F.	120	$ 20.00	$ 2,400
9.2	Clean & Paint Fencing (Black)	S.F.	3,200	$ 10.00	$ 32,000
9.3	Clean & Paint Columns	S.F.	120	$ 10.00	$ 1,200
9.4	Clean & Paint Standpipe System	L.F.	270	$ 15.00	$ 4,050
9.5	Clean & Paint Pipe Guards	EA.	3	$ 300.00	$ 900
9.6	Touch-up Paint at North Stair Tower	L.S.	1	$ 4,000.00	$ 4,000
9.7	Touch-up Paint at Ped. Bridge Ceiling	L.S.	1	$ 2,000.00	$ 2,000
9.8	Clean & Paint North Entry (Green)	L.S.	1	$ 2,000.00	$ 2,000
Division 22 - Mechanical					
22.1	Supplemental Floor Drain	EA.	1	$ 3,500.00	$ 3,500
22.2	Remove & Replace Risers	L.F.	30	$ 80.00	$ 2,400
Division 26 - Electrical					
26.1	Remove & Replace Junction Box	EA.	3	$ 300.00	$ 900
Division 32 - Exterior Improvements					
32.1	Asphalt Repair	S.F.	240	$ 20.00	$ 4,800
32.2	Seal Asphalt Cracks/Joints	L.F.	1,900	$ 2.50	$ 4,750
32.3	Paint Pavement Markings	L.S.	1	$ 4,000.00	$ 4,000
32.4	Install Railing Post Covers	EA.	20	$ 50.00	$ 1,000
32.5	Fence Repair	L.S.	1	$ 1,000.00	$ 1,000
	Construction Cost Subtotal				**$ 207,610**
	Construction Contingency (10%)				$ 20,770
	Probable Construction Cost Budget				$ 228,380
	Soft Costs (20%)				$ 45,700
	Total Probable Construction Cost Budget				**$ 274,100**

PROTECTION OPTIONS					
O1	Concrete Sealer	S.F.	26,000	$0.45	$11,700.00
O2	Concrete Sealer with Corrosion Inhibitor	S.F.	26,000	$1.10	$28,600.00
O3	Deck Coating	S.F.	26,000	$3.25	$84,500.00
O4	Deck Coating with Corrosion Inhibitor	S.F.	26,000	$4.35	$113,100.00
O5	Replace Light Fixtures	L.S.	1	$24,000.00	$24,000.00

Cady Street Parking Structure
2018 Cost Estimate
June 28, 2018

Work Item No.	Work Item Description	Units	Estimated Quantity	Unit Cost	Cost
Division 0 & 1 - General Conditions					
1.1	Contractor Mobilization (5%)	L.S.	n/a	n/a	$ 11,910
1.2	Contractor General Requirements (10%)	L.S.	n/a	n/a	$ 23,810
Division 3 - Concrete					
3.1	Top of Slab Repair	S.F.	1,090	$ 40.00	$ 43,600
3.2	Tee Flange Repair (Ceiling)	S.F.	80	$ 100.00	$ 8,000
3.3	Tee Stem Repair	S.F.	4	$ 100.00	$ 400
3.4	Beam Repair	S.F.	10	$ 100.00	$ 1,000
3.5	Column Repair	S.F.	10	$ 100.00	$ 1,000
3.6	Wall Repair	S.F.	14	$ 100.00	$ 1,400
Division 4 - Masonry					
4.1	Remove & Replace Brick	EA.	60	$ 20.00	$ 1,200
4.2	Re-Point Deteriorated Mortar Joints	L.F.	150	$ 20.00	$ 3,000
Division 5 - Metals					
5.1	Steel Tread Pan Repair	EA.	5	$ 500.00	$ 2,500
5.2	Steel Landing Panel Repair	EA.	1	$ 1,000.00	$ 1,000
Division 7 - Waterproofing					
7.1	Rout & Seal Cracks at Slab	L.F.	100	$ 5.00	$ 500
7.2	Remove & Replace Control Joint Sealants	L.F.	3,500	$ 5.00	$ 17,500
7.3	Remove & Replace Cove Joint Sealants	L.F.	200	$ 5.00	$ 1,000
7.4	Remove & Replace Cove Joint Sealants at Stairs	L.F.	510	$ 6.00	$ 3,060
7.5	Remove & Replace Interior Wall Sealants	L.F.	120	$ 10.00	$ 1,200
7.6	Remove & Replace Exterior Wall Sealants	L.F.	160	$ 10.00	$ 1,600
7.7	Install Deck Coating - Recoat	S.F.	4,000	$ 3.25	$ 13,000
7.8	Install Deck Coating at Entry/Exit - Full System	S.F.	600	$ 5.60	$ 3,360
7.9	Install Deck Coating at West Ped. Bridge - Full System	S.F.	350	$ 5.60	$ 1,960
7.10	Install Tecnorap Sealer at Stairs	S.F.	450	$ 7.00	$ 3,150
7.11	Inject Wall Cracks	L.F.	10	$ 50.00	$ 500
Division 9 - Finishes					
9.1	Clean & Paint Railing (Green) at Lower Level	L.F.	450	$ 40.00	$ 18,000
9.2	Clean & Paint Railing (Green) at Upper Level	L.F.	600	$ 30.00	$ 18,000
9.3	Clean & Paint NE Stairs (rail, stringer, riser, underside)	L.S.	1	$ 8,000.00	$ 8,000
9.4	Clean & Paint NW Stairs (rail, stringer, riser, underside)	L.S.	1	$ 6,000.00	$ 6,000
9.5	Clean & Paint West Ped. Bridge (ceiling tube steel, column base)	L.S.	1	$ 3,000.00	$ 3,000
9.6	Clean & Paint Standpipe System	L.F.	380	$ 15.00	$ 5,700
9.7	Clean & Paint Pipe Guard	EA.	4	$ 250.00	$ 1,000
9.8	Remove & Replace Flooring at NE Stair	S.F.	150	$ 10.00	$ 1,500
Division 22 - Plumbing					
22.1	Remove & Replace Risers	L.F.	30	$ 80.00	$ 2,400
22.1	Remove & Replace Standpipe	L.F.	10	$ 100.00	$ 1,000
Division 32 - Exterior Improvements					
32.1	Asphalt Repair	S.F.	6,590	$ 8.00	$ 52,720
32.2	Seal Asphalt Cracks/Joints	L.F.	800	$ 2.50	$ 2,000
32.3	Remove Asphalt & Install Concrete Transition Slab	S.F.	120	$ 40.00	$ 4,800
32.4	Paint Pavement Markings	L.S.	1	$ 3,500.00	$ 3,500
32.5	Install Railing Post Covers at Upper Level	EA.	10	$ 50.00	$ 500
	Total Estimated Construction Cost				**$ 273,770**
	Construction Contingency (10%)				$ 27,380
	Probable Construction Cost Budget				$ 301,150
	Soft Costs (20%)				$ 60,300
	Total Probable Construction Cost Budget				**$ 361,500**

PROTECTION OPTIONS					
O1	Concrete Sealer	S.F.	21,300	$0.45	$9,590.00
O2	Concrete Sealer with Corrosion Inhibitor	S.F.	21,300	$1.10	$23,430.00
O3	Deck Coating	S.F.	21,300	$3.25	$69,230.00
O4	Deck Coating with Corrosion Inhibitor	S.F.	21,300	$4.35	$92,660.00
O5	Replace Light Fixtures	L.S.	1	$20,000.00	$20,000.00

Carl Walker

10-Year Maintenance / Repair Forecast for Long-Term Life
December 2017

Work Item	Work Item Description	TOTAL COST	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
CONCRETE REPAIRS												
	Floor and Curb Repairs - First Level	$ 5,000	$ 500	$ 500	$ 500	$ 500	$ 500	$ 500	$ 500	$ 500	$ 500	$ 500
	Floor and Curb Repairs - Second Level	$ 22,200	$ 1,000	$ 1,000	$ 1,000	$ 3,600	$ 3,600	$ 1,000	$ 1,000	$ 1,000	$ 8,000	$ 1,000
	Floor and Curb Repairs - Third Level	$ 16,900	$ 1,500	$ 1,000	$ 1,000	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 4,400	$ 1,500	$ 1,500
	Helix Floor Repairs	$ 36,800	$ 17,500						$ 19,300			
	Tee Flange Repairs (Ceiling)	$ 78,400		$ 10,600	$ 10,600	$ 11,100	$ 11,100	$ 5,000			$ 24,500	$ 5,500
	Helix Ceiling Repair	$ 239,400	$ 114,000						$ 125,400			
	Tee Stem Repairs	$ 12,700				$ 300	$ 300	$ 5,100			$ 800	$ 6,200
	Beam Repair	$ 11,100				$ 1,600	$ 1,600	$ 1,800			$ 3,900	$ 2,200
	Wall Repair	$ 23,400	$ 1,000	$ 600	$ 600	$ 600	$ 600	$ 7,200	$ 1,200	$ 1,400	$ 1,500	$ 8,700
	Column Repairs	$ 26,200	$ 1,200			$ 2,000	$ 2,000	$ 6,200	$ 1,500	$ 1,000	$ 4,800	$ 7,500
WATERPROOFING REPAIRS*												
	Repair Failed Tee/Tee Joint Sealant - Second Level	$ 74,200	$ 2,300	$ 2,300	$ 2,300	$ 31,500	$ 31,500	$ 500	$ 500	$ 500	$ 2,300	$ 500
	Repair Failed Tee/Tee Joint Sealant - Third Level	$ 70,600	$ 2,300	$ 31,500	$ 31,500	$ 500	$ 500	$ 500	$ 500	$ 2,300	$ 500	$ 500
	Rout and Seal Cracks, Repair / Replace Joint Sealant - Helix	$ 1,500	$ 1,100						$ 400			
	Repair / Replace Cove Sealant	$ 12,000		$ 2,800	$ 2,800	$ 2,800	$ 2,800			$ 400	$ 400	
	Repair / Replace Cove Sealant - Helix	$ 10,700	$ 10,500						$ 200			
	Expansion Joint Remove and Replace - Silicone Sealant	$ 3,600		$ 900	$ 900	$ 900	$ 900					
	Expansion Joint Remove and Replace - Exit Bridge, Helix	$ 2,500						$ 2,500				
	Expansion Joint Remove and Replace - Third Level @ Grid Line 9	$ 23,200								$ 23,200		
	Expansion Joint Remove and Replace - Second Level @ Grid Line 9	$ 23,200				$ 23,200						
	Expansion Joint Nosing Repair	$ 1,200		$ 300	$ 300					$ 300	$ 300	
	Replace Deck Coating - Third Level	$ 437,800		$ 218,900	$ 218,900							
	Deck Coating (Recoat) - Second Level	$ 270,100				$ 128,800	$ 128,800				$ 12,500	
	Deck Coating (Recoat) - Third Level	$ 12,500								$ 12,500		
	Deck Coating Repair	$ 1,000	$ 1,000									
	Deck Coating at Concrete Patches	$ 9,400	$ 800	$ 300	$ 300	$ 500	$ 500	$ 800	$ 800	$ 1,700	$ 2,900	$ 800
	Tecnorap - Helix	$ 19,500	$ 18,300						$ 1,200			
	Penetrating Sealer Application - First Level	$ 40,000						$ 40,000				
STAIR TOWER REPAIRS												
	Touch-up Stair Tower Painting	$ 10,000						$ 5,000				$ 5,000
	Masonry Repair and Tuckpointing	$ 9,000						$ 4,500				$ 4,500
	Concrete Landing Repairs	$ 2,100				$ 300	$ 300	$ 300	$ 300	$ 300	$ 300	$ 300
	Repair Metal Stair Pans / Frames and Concrete Infill	$ 2,000						$ 200	$ 1,600			$ 200
	Deck Coating (Recoat)	$ 13,000							$ 13,000			
	Exterior Sealants	$ 7,600						$ 7,600				
MISCELLANEOUS / ARCHITECTURAL REPAIRS												
	Restripe Traffic Markings - First Level	$ 6,000						$ 3,000				$ 3,000
	Restripe Traffic Markings - Second Level	$ 6,000				$ 1,500	$ 1,500				$ 3,000	
	Restripe Traffic Markings - Third Level	$ 6,000		$ 1,500	$ 1,500					$ 3,000		
	Repair Broken Shear Connectors	$ 4,000		$ 500	$ 500	$ 500	$ 500			$ 1,000	$ 1,000	
	Tighten Shear Transfer Devices & Tee Stem Supports	$ 12,000			$ 3,000		$ 3,000				$ 3,000	$ 3,000
	Install Tee Stem Bearing Devices	$ 5,000				$ 1,000	$ 1,000	$ 1,000			$ 1,000	$ 1,000
	Stain Ceiling Patches	$ 12,100	$ 3,500	$ 400	$ 400	$ 500	$ 500	$ 800	$ 3,900	$ 100	$ 1,100	$ 900
	Miscellaneous Painting	$ 4,000						$ 2,000				$ 2,000
	Knockdown Loose Concrete	$ 30,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000
	Stain Ceiling, Walls, and Columns	$ 336,000								$ 6,000	$ 160,000	$ 170,000
MECHANICAL / ELECTRICAL / PLUMBING / FIRE PROTECTION												
	Supplemental Floor Drains	$ 2,000		$ 2,000								
	Storm Drainage System Repair	$ 8,000			$ 2,000		$ 2,000		$ 2,000		$ 2,000	
	Lighting Repair	$ 6,000	$ 2,000			$ 2,000						$ 2,000
	New Light Fixtures (LED)	$ 360,000						$ 120,000	$ 120,000	$ 120,000		
	CONSTRUCTION COST SUBTOTAL	$2,325,900	$ 181,500	$ 278,100	$ 281,100	$ 218,200	$ 198,000	$ 220,000	$ 297,800	$ 182,600	$ 238,800	$ 229,800
	CONTRACTOR MOBILIZATION AND GENERAL CONDITIONS (11%)	$ 255,849	$ 19,965	$ 30,591	$ 30,921	$ 24,002	$ 21,780	$ 24,200	$ 32,758	$ 20,086	$ 26,268	$ 25,278
	PROBABLE CONSTRUCTION COST	$2,581,749	$ 201,465	$ 308,691	$ 312,021	$ 242,202	$ 219,780	$ 244,200	$ 330,558	$ 202,686	$ 265,068	$ 255,078
	CONSTRUCTION CONTINGENCY (10%)	$ 258,800	$ 20,200	$ 30,900	$ 31,300	$ 24,300	$ 22,000	$ 24,500	$ 33,100	$ 20,300	$ 26,600	$ 25,600
	PROBABLE CONSTRUCTION COST BUDGET	$2,840,549	$ 221,665	$ 339,591	$ 343,321	$ 266,502	$ 241,780	$ 268,700	$ 363,658	$ 222,986	$ 291,668	$ 280,678
	SOFT COSTS (20%)	$ 568,110	$ 44,333	$ 67,918	$ 68,664	$ 53,300	$ 48,356	$ 53,740	$ 72,732	$ 44,597	$ 58,334	$ 56,136
	TOTAL PROBABLE CONSTRUCTION COST BUDGET	**$3,408,659**	**$ 265,998**	**$ 407,509**	**$ 411,985**	**$ 319,802**	**$ 290,136**	**$ 322,440**	**$ 436,390**	**$ 267,583**	**$ 350,002**	**$ 336,814**

Notes:
1. 2018 & 2024 - Helix Repairs
2. 2019-2020 & 2025 - Level 3 Repairs
3. 2021-2022 & 2026 - Level 2 Repairs
4. 2023 & 2027 - Level 1 Repairs
5. Totals in 2018 dollars (no increase for inflation)