

# Market Street Parking Garage Condition Assessment Report



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**Kimley»Horn**



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## EXECUTIVE SUMMARY

At the request of the City of Charlottesville, Virginia, Kimley-Horn and Associates, Inc., completed a limited condition assessment of the Market Street Parking Garage as part of an agreement dated May 25, 2021. The purpose of this assessment was to observe the general condition of the parking facility, identify deficient items, and provide repair recommendations with budgetary construction cost estimates in an effort to preserve the Client's capital assets and prolong the life span of the parking deck.

The Market Street Parking Garage in Charlottesville, VA is four and a half (4.5) levels (one at-grade and three and a half elevated) and consists of a cast-in-place post tensioned concrete structural system. The facility provides 649 total parking spaces for employees and visitors to downtown. All four sides of the building are clad in a slatted precast façade and masonry brick, allowing for natural light and ventilation.

Kimley-Horn performed a limited condition assessment of the deck's readily accessible and visible elements which we have categorized as: Structural, Waterproofing, Operational, Systems, and Aesthetic. Destructive testing was not performed as part of our evaluation. Enclosed areas or otherwise inaccessible spaces were not observed. Our assessment included the following:

- Reviewing available, disclosed parking deck reports and plans
- Conducting a walk-through, nonintrusive, nondestructive, visual assessment of the readily accessible components and building systems
- Performing limited concrete soundings (chain drag and hammer soundings)
- Photographic documentation of representative conditions
- Recording field notes

In general, the condition assessment identified conditions common among parking structures of similar age and construction type in this region. No immediate life-safety issues were observed. Overall, the parking deck appeared to be performing well but does have some deficiencies that need to be addressed to prevent further deterioration. This resulted in an overall performance rating of *'Fair'*. The details of these findings are discussed further in the main body of this report, with Key Findings specifically noted for the following elements: *concrete deficiencies at Levels 3 & 4; parapet corner spalls.*

The below table summarizes the Opinion of Probable Costs (OPC) for each priority, which includes the hard construction costs for repairs as well as allowances for soft costs (design fees, testing fees, escalation, and owner's contingency). This OPC is presented to assist the Client with developing a general order-of-magnitude cost for budgetary purposes. See Appendix B for the complete OPC for each recommended repair item.

	Priority 1	Priority 2	Priority 3
Cost	\$650,000	\$270,000	\$320,000

## INTRODUCTION

### SCOPE OF WORK

The objective of this report is to provide the City of Charlottesville (“City” or “Client”) with a condition assessment to document the general condition of the facility, identify well-performing and deficient items, and provide our professional opinion on recommended repairs with budgetary construction cost estimates in an effort to maintain the service life of the parking facility as originally designed. This report contains a general description, element ratings, findings, and recommendations of the conditions observed by Kimley-Horn and Associates, Inc.

Available, disclosed documents for the parking deck were reviewed which included the following:

- “City Parking Structure”, Record Drawings dated July 1973, prepared by Kimley-Horn and Associates Inc.

A visual, non-destructive, walk-through condition assessment of the parking deck’s Structural, Waterproofing, Operational, Systems (mechanical / electrical / plumbing / fire protection), and Aesthetic categories was conducted. The observed Structural elements included the slabs, ceilings, beams, columns, walls, masonry, vehicular restraint systems, stairs, and miscellaneous metals. The observed Waterproofing systems generally consisted of expansion joints, joint sealants, traffic coatings, and architectural sealants. The Operational systems generally included striping, signage, accessible parking spaces, sidewalks/curbs/medians, stair cores, bollards, stairs operational elements like railings and nosings, and safety items. The Systems observed included lighting, piping, mechanical, electrical, fire systems, elevators, and security. Observed Aesthetic systems consisted of the exterior façade, painting, and general overall appearance.

The walk-through assessment was limited to readily accessible parking areas of the structure. Stairwells were included in the walk-through. Rooms and enclosed spaces were not entered. Observations of the exterior façade and underside of structure were only made from grade/floor level. No access to the roof of the stair towers was provided. Selective light meter readings were conducted to determine baseline readings of typical light levels as well as areas where there appeared to be low-light or uniformity concerns in illumination within the parking areas.

Limited hammer soundings and chain drag surveys were performed on select areas of concrete suspect to delamination and periodically performed throughout the deck during the walk-through assessment. No destructive/intrusive testing was performed as a part of the Kimley-Horn site visit. Our scope did not include structural analysis, gravity or lateral, of the existing structure or vehicular barriers, code review or accessibility assessment other than explicitly described herein.

Defining deck characteristics and items indicative of overall current conditions along with specific items requiring attention were documented with photographs and can be found in Appendix C.

The walk-through assessment was conducted on June 30, 2021 by Kimley-Horn representatives. During the site visit it was sunny with no known recent precipitation. For complete weather information during the site visits, refer to [www.wunderground.com](http://www.wunderground.com). At the time of the walk-through assessment, a limited number of vehicles were present and obstructed some views of floor areas throughout the deck.

## GENERAL DESCRIPTION

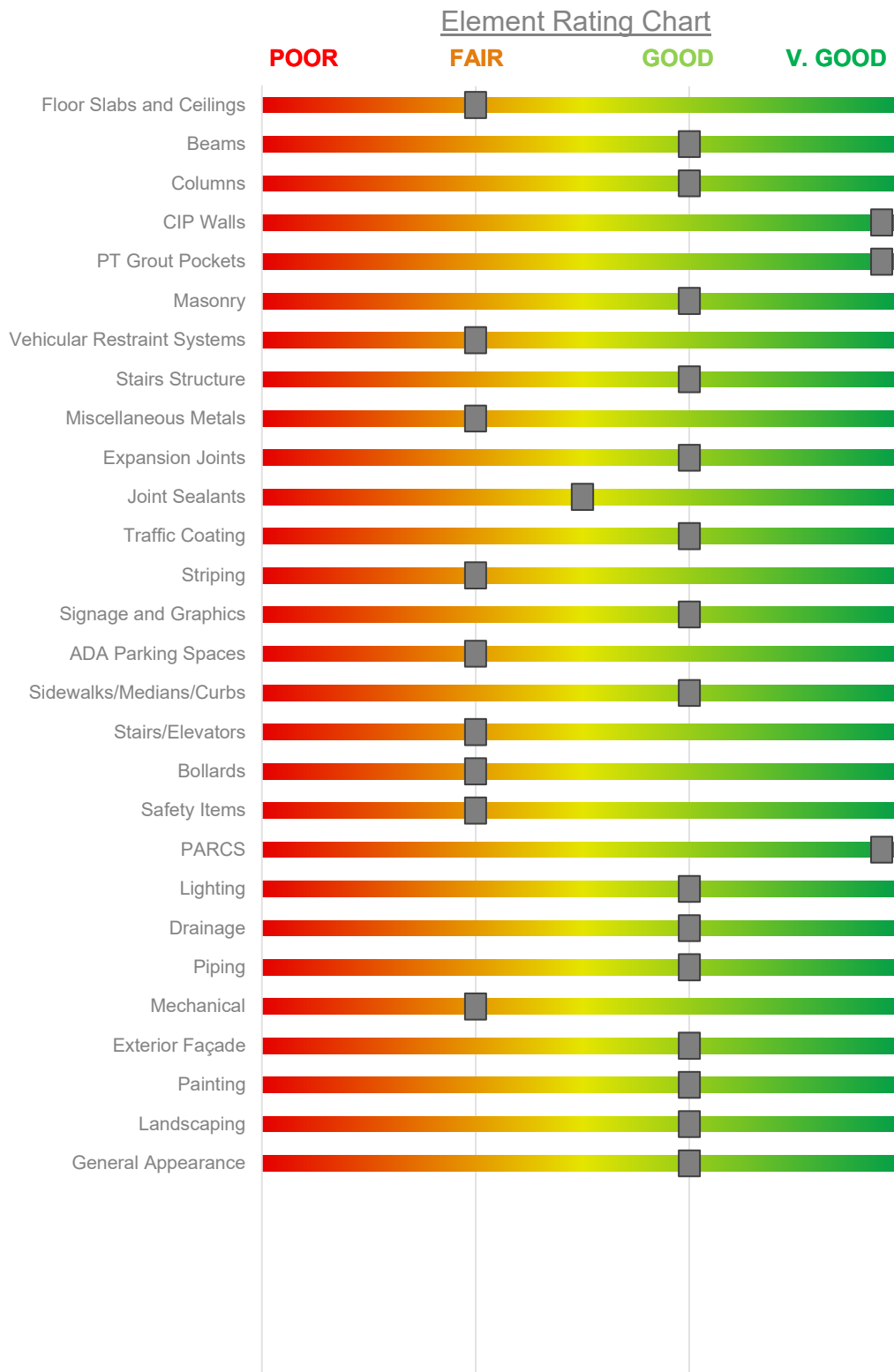
The Market Street Parking Garage was originally constructed circa 1973 is located at 550 Market St E, Charlottesville, VA 22902 on a site bounded by 5<sup>th</sup> Street NE to the west, Charlottesville City Hall Building to the east, East Main Street to the south, and the E Market St to the north. Below is a general description of the deck based on the walk-through assessment and information shown in the provided drawings.

- Number of levels: 1 on grade, 4 structured
- Overall footprint approximately 233' x 195'
- Approximately 649 parking spaces
- Structural system for elevated levels: post tensioned concrete beam joists; mildly reinforced concrete slabs
- Mixed use office and retail space exist around the west and south sides of the garage

## PREVIOUS MODIFICATIONS AND REPAIRS OBSERVED

- Concrete repairs and patches
- Routed and sealed cracks
- Expansion joint replacement
- Brick façade repairs
- Walkway and railing repairs along Main Street
- Accessible parking modifications

## RATINGS SUMMARY TABLE



## FINDINGS AND RECOMMENDATIONS

The tables below indicate components within Structural, Waterproofing, Operational, Systems, and Aesthetic categories that were observed in the walk-through with each element receiving a rating of “Very Good”, ‘Good’, ‘Fair’, ‘Poor’, or ‘N/A’ which represents the median condition of all individual similar elements. Rating descriptions are defined further in Appendix D.

### ABBREVIATIONS:

- CIP: Cast-in-place
- CMU: Concrete Masonry Unit
- EJ: Expansion Joint
- N/A: Not Applicable
- PARCS: Parking Access and Revenue Control System
- PT: Post-Tensioned
- SOG: Slab-on-grade

### STRUCTURAL

Structural Element	Rating	Observations	Recommendations
Concrete (General)	Fair	Deterioration was observed throughout the structure, such as spalls with or without exposed reinforcement, delaminated concrete, and cracking. While this deterioration is consistent with the age of the structure, deficiencies will continue to worsen if not regularly repaired.	Repair spalls, exposed reinforcement, and delaminations in CIP elements with a polymer modified patching mortar and an epoxy-modified, cementitious bonding and anticorrosion agent.
Floor slabs and ceilings	Fair	<p>New areas of spalled and delaminated concrete were observed throughout the facility. In general, the highest area of concrete deficiencies was observed on Level 4 (the top, exposed level), although significant areas were also noted at Level 3. Many new spalls were observed adjacent to previously repaired patches.</p> <p>New cracks requiring repair were observed throughout each elevated level. Limited leaking / leaching was observed through cracks at the top exposed levels. In general, more areas of cracking were observed on Level 3.</p> <p>Previous repaired floor patches have failed and need to be replaced. Previous crack repairs were observed in good condition.</p>	<p>See general concrete repair recommendations for spalls, exposed rebar, and delaminations.</p> <p>Due to the high volume of spalling and deficiencies at Level 4, it is recommended to install a traffic coating membrane over the entire surface.</p> <p>Due to the increased spalling and deficiencies at Level 3, it is recommended to surface apply a waterproofing agent that will form crystalline growth within the concrete capillaries. This agent will greatly reduce the amount of water getting into the</p>

Structural Element	Rating	Observations	Recommendations
			concrete causing corrosion, while also being able to self-heal small cracks.
			Moderate width cracks (>1mm) should be repaired by routing and sealing the cracks using urethane joint sealant from the top side of the cracks.
Beams	Good	CIP beam joists are in good condition with limited locations of cracks and spalls observed. Strain Gauges were noted on the underside of (2) beam stems on Level 2 and indicated little to no movement of cracks. The date of strain gauge installation and the strain gauge installer is unknown.	See general concrete repair recommendations for spalls, exposed rebar, and delaminations.
Columns	Good	CIP columns are in good condition with limited locations of cracks and spalls observed. Some columns were observed with pattern cracking at Levels 3 and 4 due to previous alkali silicate reaction (ASR) cracking. This cracking appears stabilized without new evidence of ASR activity.	Continue to regularly monitor columns for new ASR activity.
CIP walls	Very Good	CIP basement walls in the below grade parking area were observed to be in good condition. There were no specific concrete deficiencies observed.	N/A
PT grout pockets	Very Good	During construction, non-shrink grout is placed in the open pockets left behind during PT stressing operations to protect the anchor heads from moisture intrusion. The PT grout pockets generally appeared to be in good condition with no specific deficiencies observed.	N/A
Masonry	Good	Storage, mechanical, electrical, and service room walls consist of 8" CMU although access was not provided within these rooms. CMU is also along the Level 1 ramp to separate parking from commercial space. In general, the masonry is in good condition with limited areas of cracking and deterioration noted.  Brick masonry is used extensively around the façade. Previous repairs appear to be in good condition. Minor new deficiencies such as cracking and efflorescence were observed. Subsequent to Kimley-Horn's site visit, a brick become loose and fell from the Level 4 façade near the southwest stair tower.	Seal cracks in the masonry using a urethane sealant.
Vehicular Restraint Systems	Fair	The perimeter vehicular and pedestrian restraint systems are provided by precast façade panels. At Levels 1-3, the precast panels also have timber bumpers. At Level 4, the precast panels also have metal guardrail	See general concrete repair recommendations for spalls, exposed rebar, and delaminations.

Structural Element	Rating	Observations	Recommendations
		<p>bumpers. In general, the precast panels are in good condition except at the top, exposed level where the panels intersect the columns. At these intersections, the top corner of the panel is spalling at nearly every column despite having been repaired during previous restoration efforts.</p> <p>Interior ramp vehicular and pedestrian restraint systems consist of metal guardrails and railings. The spacing of these rails exceed current building code requirements for pedestrian barriers which require maximum spacing of 4". However, a code review was not performed to verify compliance during original construction. The barriers generally appear to be in good condition.</p>	<p>For the perimeter parapets experiencing spalls, additional isolation between the column and parapet is required. This report and OPC assume repairing the parapet by chipping back spalled concrete, creating a wider gap (1" to 1.5") between the column and parapet for at least the top 12", and then replacing joint sealant.</p> <p>To improve pedestrian safety, it is recommended to install additional fencing or barriers along the interior ramp lines. One example includes black vinyl chain link fencing which can be affixed directly to the existing metal railings.</p>
Stairs	Good	<p>There are two stair / elevator towers located in the southwest and northeast corners of the garage. Stair framing consists of CIP concrete risers, beams, and columns for the treads and landings. The pedestrian barrier consists of steel railing. In general, the stairs are in good condition due to minor amounts of concrete deterioration and spalling. The most frequent locations of spalls occur at railing post embedment to the concrete.</p> <p>Elevator cores have CIP walls. In general, the concrete is in good condition.</p>	See general concrete repair recommendations for spalls, exposed rebar, and delaminations.
Miscellaneous Metals	Fair	<p>Steel lintels supporting brick façade over the stair entrance/exits were noted to have minor amounts of corrosion.</p> <p>Steel clip angles connecting the Precast façade to the main parking structure were noted to be in good condition with little to no corrosion.</p> <p>Metal guardrails are connected to the concrete structure using metal angles and bolts. Minor corrosion is starting to appear at the top, exposed level.</p>	<p>Blast clean areas of steel corrosion and repaint with a high-performance paint coating.</p> <p>Replace corroded elements at light poles. See general concrete repairs for repairs at base of light pole</p>



Structural Element	Rating	Observations	Recommendations
		Corrosion was observed to the door and doorframe at the northwest stairs, Level 1.	
		Anchor Bolts and base mounts of light poles on the top level were noted to be severely corroded.	
		Metal awnings overhang retail spaces along Main Street and are generally in good condition. All exposed steel elements are painted although minor corrosion was observed at the top flanges of some awnings. No deficiencies were observed to the metal decking or tension wire.	

## WATERPROOFING

Waterproofing Element	Rating	Description / Notes	Recommendations
Expansion Joints	Good	<p>An expansion joint was located along Column Line G on each level, approximately 2" wide. Expansion joints typically consist of epoxy bonded rubber joints at the horizontal floor surface and vertical impregnated foam joints at the west exterior columns. Interior vertical column joints are sealed with urethane sealant. The transition between SOG to elevated structure contains urethane sealant. According to Reef Parking, the Level 4 floor expansion joint was replaced with an impregnated foam system in 2019.</p> <p>Joints are in good condition after having been recently replaced in 2016. The expansion joints on Level 2 is nearing the end of its useful life but does not require replacement.</p> <p>Expansion joints typically have debris in the joint which should be cleaned out. Failing to keep the joints clean could void the existing warranty.</p>	N/A.
Joint Sealants	Fair / Good	<p>Construction joints are located between adjacent slab pours and around the tower crane openings. Sealant in the joints is generally in good condition. Limited areas of deteriorated / missing joint sealant were noted at various locations near columns on Level 4 (top level).</p> <p>Interior vertical sealant at masonry is generally in good condition.</p> <p>Exterior joint sealant on brick façade is starting to crack and fade and is generally in fair condition. Leaching was noticed on exterior walls in the northeast and northwest corners at Levels 4 and 3.</p> <p>SOG joints are typically unsealed.</p>	<p>Replace old joint sealant in the construction joints and at failed joints along the perimeter of Level 4. Priority should be placed on those exposed joints on Level 4.</p> <p>Clean exterior walls where leaching occurs and apply new joint sealant.</p>
Waterproofing Traffic Coating	Good	<p>Traffic coating is installed over the entire Level 1 parking surface and up the ramp to Level 2. It is generally in good condition with minor areas of wear. This traffic coating was last replaced in 2011.</p> <p>Traffic coating is installed in both stair towers at the landings and risers. It is generally in good condition with minor areas of wear.</p>	N/A

Waterproofing Element	Rating	Description / Notes	Recommendations
Architectural Sealants	Good	Architectural sealants at the stair window glazing were generally in good condition with no indication of active leaks.	N/A

## OPERATIONAL

Operational Element	Rating	Description / Notes	Recommendations
Striping	Fair	Overall condition of striping is fair, with typical sections where the paint is fading and nearing the end of its useful service life. At Level 1, a different striping color might help provide better contrast against the tan traffic coating.	Complete a restriping program throughout the deck; starting in the most used floors and moving to least used.
Signage and Graphics	Good	<p>Level signage throughout the deck was provided on signs hung from concrete stems. Signage was clearly located at multiple areas throughout the deck and clearly showed vehicular paths of movement and exits.</p> <p>Interior stair signage does not appear to conform to current building code requirements which require identification of the stair number, level of exit discharge, and provide an Exit sign.</p> <p>Signage for the fire department connections (FDC) is very faded and difficult to read.</p>	<p>Upgrade interior stair signage and ADA signage to meet current building codes.</p> <p>Replace FDC signage at each level.</p>
Accessible Parking Spaces	Fair	<p>Kimley-Horn did not perform an Accessibility review for the parking facility. However, the following observations noted during our walk through:</p> <ul style="list-style-type: none"> <li>• ADA signage is either supported by steel posts mounted in the concrete surface or mounted directly to concrete spandrels. ADA signage was mounted lower than current code standards on Level 4, which requires 48" to the bottom of the "reserved" sign.</li> <li>• ADA signage styles vary throughout the facility, many of which do not comply with current Virginia standards.</li> <li>• At Level 4, one bollard was installed within the ADA access aisle adjacent to the southwest stair. No obstructions are allowed within the access aisle according to federal ADA Standards.</li> </ul>	<p>Replace ADA signs to comply with current standards and ensure all signs are mounted at the correct height.</p> <p>Relocate the bollard in the Level 4 ADA access aisle.</p>
Sidewalks, Medians, Curbs	Good	Curbs are located at the PARC equipment and also used to separate adjacent parking aisles on each floor. The curbs are generally in good condition with limited areas of concrete deterioration observed. Curbs are painted at the PARC equipment, at the stair tower, and at some end turning bays.	Paint the face and top 6" of all curbs at the end turning bays yellow where not already done so. Paint the face of curbs around PARCS equipment yellow.
Stairs, Elevators	Fair	Metal railings provide pedestrian restraint at locations such as the stair / elevator lobby areas. Stair railings are painted and are generally in good structural condition although the spacing of rail supports exceeds the 4" spacing required by current code requirements. The biggest concern exists	Install additional guards between the stair railings to reduce openings less than 4". The priority should be at the top landings.

Operational Element	Rating	Description / Notes	Recommendations
		<p>at the top of the Level 4 stair landing, overlooking the risers below, where the barrier height only measures 34.5" high and has a significant gap from the floor surface to the first railing crossbar.</p> <p>Stair nosings have traffic coating cover their surface. Non-slip resistance appears adequate on the concrete surface although visual contrast on the end of each nosing could be improved.</p> <p>Doors and metal headers are painted and in good condition.</p>	
Bollards / Guards	Fair	<p>Bollards were observed to generally be in good condition. Bollards are used around the parking control equipment, and at fire standpipe risers.</p> <p>Three bollards on Level 2 were observed to have corroded bases, base plates, and bolts.</p> <p>Bollard caps are missing on two bollards at Level 4.</p> <p>At Level 2, east bay, one bollard in front of mechanical ducts was loose / unanchored to the floor.</p>	<p>Install pipe protection in front of storm pipe risers.</p> <p>Replace three corroded bollards at Level 2.</p> <p>Install bollard caps at Level 4.</p>
Safety Items	Fair	<p>At Level 1, there is a ½" to ¾" lip on the flared curb ramp which may present a tripping hazard. Vertical faces of interior curbs are not painted.</p> <p>Emergency call boxes appear to have recently been installed throughout the deck. All lights appeared to be functional although were not tested as part of this assessment.</p> <p>Fire extinguishers were only observed in the stairs, which may not meet spacing requirements per the current building code.</p> <p>See previous comments regarding spacing of barriers and railings.</p>	<p>Shave down concrete on the curb ramp to eliminate the lip.</p> <p>Install additional fire extinguisher cabinets within the parking garage.</p>
Parking Access and Revenue Control System (PARCS)	Very Good	<p>Parking control equipment was newly installed in 2019. The equipment appeared functional and in good condition.</p> <p>Reef Parking noted that the rolling gate on Level 2 is no longer being used for garage operations.</p>	N/A

## SYSTEMS

Condition assessments of the mechanical, electrical, plumbing, and fire protection (MEPF) systems, including elevators, are being performed by City personnel as part of other work and therefore were not specifically included in our assessment or opinion of cost. However, some limited observations during Kimley-Horn's site visits have been noted below for the Client to incorporate into their overall maintenance program.

System Element	Rating	Description / Notes	Recommendations
Lighting	Good	<p>Fluorescent fixtures are used in the garage and fluorescent wall pack fixtures are used in the stair towers. Lighting levels generally appeared adequate and the minimum light meter reading of 1.4-foot candles (fc) exceeds the minimum 1.0-fc recommended by the Illuminating Engineering Society of North America (IESNA). There is some indication of light uniformity issues, evidenced by dark versus light areas and from the light meter readings. The measured illumination uniformity ratio (max:min) measured up to 11.5:1 , which slightly exceeds the IESNA recommendation of 10:1.</p> <p>Some light fixtures were beginning to yellow, indicating they are reaching the end of their useful service life.</p>	Maintenance crews should regularly review lighting fixtures and replace those which are burned out or significantly starting to yellow.
Drainage	Good	Area drains in the floors are distributed throughout the garage and are generally in good condition. No specific areas of drain body deficiencies nor ponding were observed.	Maintenance crews should regularly review drains and unclog any which have excess debris.
Piping	Good	<p>Stormwater piping generally appeared to be in good condition with minor areas of corrosion observed. There was no evidence of leaks through the joints.</p> <p>Fire protection consists of dry standpipe valves, which are located at the corners of the garage on each level.</p>	N/A
Mechanical	Fair	The garage is naturally ventilated and does not contain any mechanical ventilation fans. However, Levels 1-3 and the stair towers are noticeably stuffy without much air movement.	Conduct a ventilation study to verify that levels of CO <sub>2</sub> , CO, and other harmful gases are being appropriately ventilated through the facility.

## AESTHETICS

Aesthetic Element	Rating	Description / Notes	Recommendations
Exterior Façade	Good	The façade consists of precast concrete panels and brick. While deficiencies to concrete and brick were generally not observed, there are dirt stains present throughout.	Power wash the exterior façade.
Painting	Good	<p>Exterior railings are painted and generally in good condition, with only limited areas where peeling paint was observed.</p> <p>The interior railing at the ADA ramp adjacent to the northeast stair, Level 2 is starting to peel.</p> <p>The interior stair walls are painted. The paint is generally in good condition with no areas of deficiencies noted.</p>	N/A
Landscaping	Good	<p>The garage is generally bounded by impervious materials, such as adjacent roadway, concrete sidewalk, or brick pavers. Landscaped areas are generally limited to the west side of the garage and include small shrubs and medium size trees. Trees also exist at regular intervals along Main Street. In general, plantings appear well-maintained and tree foliage is being trimmed and away from the garage.</p> <p>Along the west walkway parallel to 5<sup>th</sup> Street, portions of the brick walkway are starting to separate where the metal railing are embedded into the walking surface. The railing did not appear loose.</p>	<p>Trim tree foliage as part of regular maintenance so that limbs and leaves do not grow into the garage.</p> <p>While immediate repairs to the walkway are not required, it is recommended to continue monitoring the brick in case further separation occurs and the railing loses stability.</p>
General Appearance	Good	The deck is dirty in some areas, but overall is generally clean and in good condition.	Power wash the deck floor, ceiling, wall, and column surfaces as part of ongoing maintenance practices.



## GENERAL RECOMMENDATIONS

Decks are exposed to the environment and require diligent upkeep of waterproofing and sealing systems to keep structural components in good condition. Anywhere water is intruding or steel is exposed to the environment should be addressed, as ignoring these items can limit the useful life of the deck. While system, operational, and aesthetic issues may not directly affect the deck's life span in the same way that structural or waterproofing issues can, they should not be ignored solely on that basis. The Owner has a vested interest in maintaining a user friendly, appealing structure in the same way it has an interest in protecting its parking investment from the effects of structural disrepair.

These maintenance and repair recommendations have been developed according to their impact on the overall structural, waterproofing, operational, system, and aesthetics of the parking deck based on our professional opinion. Based on our walk-through survey, the recommendations and Opinion of Probable Cost ("OPC") provided have been prepared to remedy the deficiencies observed.

Kimley-Horn reviewed various repair options, current repair technologies/approaches/products and has recommended a repair and maintenance program appropriate for the age and existing condition of this parking facility. Repair recommendations for the deficient items observed during this assessment have been prioritized in the cost estimate according to the anticipated immediacy of the needed repairs as well as the anticipated impact on the overall building's systems.

- **PRIORITY 1** deficient items have a more immediate impact to the functionality of the building systems and are recommended to be addressed within one to two years. Included are also items observed that may present a life-safety concern.
- **PRIORITY 2** deficient items are intended to assist in protecting the building from further deficiencies and are recommended to be addressed within two to three years.
- **PRIORITY 3** deficient items are existing deficiencies that do not appear to prevent the systems from functioning now, but that could impact the systems if not addressed in the future.

Implementation of these recommended repairs can be phased and scheduled around the Owner's parking program to accommodate patron usage during the repair process. Many of our recommendations require specialized knowledge to design, detail, and construct. The recommendations in the tables above outline items in need of repair but do not provide specific, detailed repair procedures. These recommendations outline items in need of repair and present limited conceptual procedures. A firm with expertise in parking deck repairs should be retained to design and detail the specialty recommendations including proper material selection and methods of repair. Once restoration construction documents are prepared, a specialty contractor should be selected to perform the work.

## MATERIALS TESTING

Materials testing was not performed at the Market Street Parking Garage.

## APPENDICES

A – Limitations

B – Opinion of Probable Cost

C – Representative Photographs

D – Rating Guidelines and Definitions

E – Recurrence Intervals

F – Resources

## APPENDIX A

### LIMITATIONS

Kimley-Horn and Associates, Inc. endeavors with this report to assist the City of Charlottesville in the understanding of the existing conditions within the parking facility in an effort to plan for the repair and maintenance of the structures. This report is based on the specific observations made and the professional opinion and experience of Kimley-Horn. Our recommendations provide general repair approach but do not provide specific repair details or specifications. The report is not a warranty or guarantee of the items noted. The extent of our evaluation was limited, and we cannot guarantee that the assessment discovered every possible condition that has or will occur.

Throughout the parking structure's service life it will be exposed to environmental conditions detrimental to the structural integrity and the waterproofing, systems, operational, and aesthetic conditions. It is likely that further deterioration will occur over time. However, preventative maintenance performed by the City of Charlottesville can help to minimize the long-term repair needs.

This report has been prepared in accordance with the professional standard of care. No other warranties or guarantees, express or implied, are made or intended. This report has been prepared solely for the City of Charlottesville for the purpose stated herein and should not be relied upon by any other party for any other purpose. Specifically, this report may not be used in connection with actual renovation or construction of any kind. The conclusions in this report are based on the limited investigation described herein. Any reliance on this report by any party other than the City of Charlottesville shall be without liability to Kimley-Horn and Associates, Inc. or its employees.

## APPENDIX B

### DETAILED COST BREAKDOWN

The anticipated opinion of construction costs associated with the recommendations is intended to provide relative budgetary information to the City of Charlottesville. Anticipated construction costs are provided in this Appendix B. These construction costs are based on limited field observations and estimated quantities. Unit price information is based on our current knowledge of the market conditions, RS Means, and historical repair cost information. No solicitation or information from contractors was gathered in the development of these cost projections.

Cosmetic, decorative, tenant improvements, enhancements, improvements required for warranty transfer, and/or routine or normal preventive maintenance items are not included in the opinion of probable cost, unless noted otherwise. This opinion of probable cost is presented to assist the City of Charlottesville to develop a general order-of-magnitude cost for budgetary purposes.

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Market Street Parking Garage				
Repair Item	Note	Priority 1	Priority 2	Priority 3
<b>Structural</b>				
Repair shallow floor spalls and delamination - Priority 1		\$86,850	\$0	\$0
Repair shallow floor spalls and delamination - Priority 2		\$0	\$44,100	\$0
Repair shallow vertical / overhead spalls and delamination		\$27,000	\$0	\$0
Floor rout and seal partial-depth cracks		\$23,595	\$0	\$0
Epoxy inject cracks		\$22,950	\$0	\$0
Replace Light Pole Fixture Connections		\$600	\$0	\$0
Clean and paint steel		\$0	\$3,000	\$0
Repair spandrel corners		\$12,600	\$0	\$0
Rout and seal CMU / masonry wall cracks		\$3,150	\$0	\$0
<b>Waterproofing</b>				
Install/ replace joint sealant		\$1,155	\$0	\$0
Replace Construction Joint Sealant		\$1,320	\$0	\$0
Apply silane sealer (w/ corrosion inhibitor) Levels 2 and 3		\$0	\$83,400	\$0
Install traffic coating (urethane-based) Level 4		\$299,640	\$0	\$0
<b>Operational</b>				
Restripe stalls and pavement markings		\$0	\$0	\$17,848
Replace damaged bollards		\$0	\$4,290	\$0
Install new ADA sign		\$0	\$330	\$0
Install new stair and FDC signs		\$0	\$0	\$3,168
Paint curbing		\$0	\$2,310	\$0
Install chain link fencing		\$0	\$32,400	\$0
Stair railing guards at top landing		\$880	\$0	\$0
Install Storm Riser Pipe Protection		\$0	\$550	\$0
Shave down lip at curb ramp		\$0	\$1,155	\$0
Install new / more fire extinguisher cabinets		\$0	\$0	\$880
<b>Systems</b>				
Install / Replace Light Fixtures	1	\$0	\$0	\$0
Install supplemental storm drains	1	\$0	\$0	\$0
<b>Aesthetics</b>				
Power wash exterior facade		\$0	\$0	\$50,787
Power wash interior surface		\$0	\$0	\$112,210
Trim foliage / plant growth	1	\$0	\$0	\$0
<b>Subtotal</b>		<b>\$480,000</b>	<b>\$172,000</b>	<b>\$185,000</b>
<b>Additional Cost</b>				
General Conditions, Overhead/Profit, Mobilization		\$96,000	\$34,400	\$37,000
A/E and Testing Fees		\$72,000	\$40,000	\$40,000
Escalation (5% per year)		\$0	\$17,630	\$51,112
<b>Total</b>		<b>\$650,000</b>	<b>\$270,000</b>	<b>\$320,000</b>
Cost per SF:		\$4.10	\$1.70	\$2.02
Cost per Space:		\$1,002	\$416	\$493

**Notes:**

1. This repair item is anticipated to be completed by the Client as part of routine, ongoing maintenance activities and so a cost has not been included for this item.

PlanGrid Full Task Report - Sep 23, 2021

Prepared by Matt Sumpter  
Sep 23, 2021

Description

277 tasks in this report.

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## #240 Masonry

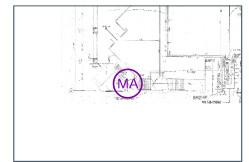
Status  
Open

Type  
Issue

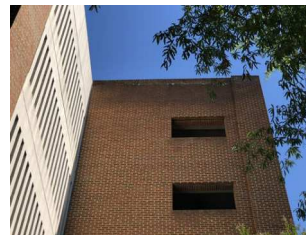
Description  
Dirty / stained brick

Created  
Jun 30, 2021 10:53 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level Main St



## Photos



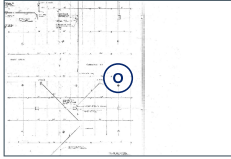
20210630\_105352\_photo  
Matt Sumpter  
Jun 30, 2021 10:53 AM

#317 Operational

Status  
Open

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level Main St



Description  
Rusted bollards below drive  
entry

Photos



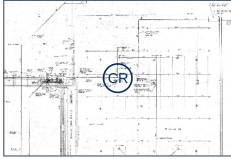
20210630\_104245\_photo  
Joey DiSerafino  
Jun 30, 2021 10:42 AM

#318 Crack

Status  
Open

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level Main St



Schedule Impact  
15 days

Photos



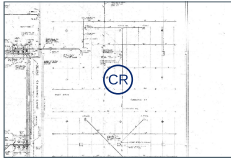
20210630\_104529\_photo  
Joey DiSerafino  
Jun 30, 2021 10:45 AM

#319 Crack

Status  
Open

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level Main St



Photos



20210630\_104621\_photo  
Joey DiSerafino  
Jun 30, 2021 10:46 AM

#6 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 29, 2021 7:20 PM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 4



Schedule Impact  
10 days

Photos



20210629\_192211\_photo  
Matt Sumpter  
Jun 29, 2021 7:22 PM



20210629\_192033\_photo\_edited  
Matt Sumpter  
Jun 29, 2021 7:22 PM



20210629\_192033\_photo  
Matt Sumpter  
Jun 29, 2021 7:20 PM

#7 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:23 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
10 days

Photos



20210629\_192311\_photo  
Matt Sumpter  
Jun 29, 2021 7:23 PM

#8 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:24 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days

Photos



20210629\_192419\_photo  
Matt Sumpter  
Jun 29, 2021 7:24 PM

#9 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:24 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
10 days

Photos



20210629\_192448\_photo  
Matt Sumpter  
Jun 29, 2021 7:24 PM

#10 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:26 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
2 days



#11 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:27 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
2 days



#12 Spall / Delamination / Exposed Rebar

Status  
Open

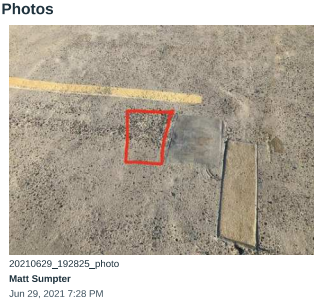
Type  
Issue

Created  
Jun 29, 2021 7:28 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
2 days




#13 Vehicular restraint

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:30 PM  
adam.cochran@kimley-horn.com


Sheet  
Level 4




Description  
Typical perimeter barrier

Photos

Market Street Parking Garage - Condition A...  
546 East Market Street, Charlottesville, Virginia





20210629\_193030\_photo  
Adam Cochran  
Jun 29, 2021 7:30 PM


#14 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue


Created  
Jun 29, 2021 7:30 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
2 days

Photos




20210629\_193025\_photo  
Matt Sumpter  
Jun 29, 2021 7:30 PM

Prepared by Matt Sumpter

25

Created with PlanGrid

Market Street Parking Garage - Condition A...  
546 East Market Street, Charlottesville, Virginia




#15 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue


Created  
Jun 29, 2021 7:31 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
2 days

Photos




20210629\_193139\_photo  
Matt Sumpter  
Jun 29, 2021 7:31 PM

Prepared by Matt Sumpter

27

Created with PlanGrid

Market Street Parking Garage - Condition A...  
546 East Market Street, Charlottesville, Virginia



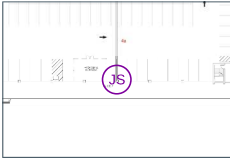
#16 Joint sealant / CJ

Status  
Open

Type  
Issue


Created  
Jun 29, 2021 7:31 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Description  
Failed vertical sealant

Photos




20210629\_193025\_photo  
Matt Sumpter  
Jun 29, 2021 7:30 PM

Prepared by Matt Sumpter

26

Created with PlanGrid

Market Street Parking Garage - Condition A...  
546 East Market Street, Charlottesville, Virginia



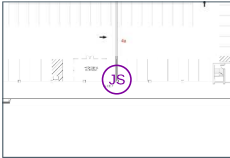
#16 Joint sealant / CJ

Status  
Open

Type  
Issue


Created  
Jun 29, 2021 7:31 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Description  
Failed vertical sealant

Photos



20210629\_193025\_photo  
Matt Sumpter  
Jun 29, 2021 7:30 PM

Prepared by Matt Sumpter

28

Created with PlanGrid





20210629\_193202\_photo  
Adam Cochran  
Jun 29, 2021 7:32 PM

#17 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:33 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days

Photos



20210629\_193340\_photo  
Matt Sumpter  
Jun 29, 2021 7:33 PM

#18 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:35 PM  
matt.sumpter@kimley-horn.com

Description  
Failed sealant in CJ

Photos



20210629\_193552\_photo  
Matt Sumpter  
Jun 29, 2021 7:35 PM

#19 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:37 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
a month

Photos



20210629\_193716\_photo  
Matt Sumpter  
Jun 29, 2021 7:37 PM


#20 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:38 PM  
matt.sumpster@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
2 days




#21 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:39 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Description  
Cove joint around full perimeter (typically good)

Photos




#22 Structural

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:42 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Description  
Abrasion deterioration on concrete slab

Photos





20210629\_194249\_photo  
Adam Cochran  
Jun 29, 2021 7:42 PM

20210629\_194237\_photo  
Adam Cochran  
Jun 29, 2021 7:42 PM

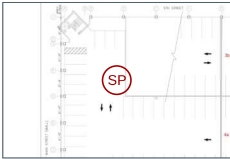
#23 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:42 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days

Photos



20210629\_194257\_photo  
Matt Sumpter  
Jun 29, 2021 7:43 PM

#24 Striping

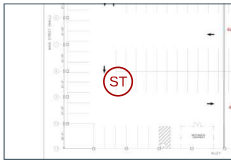
Status  
Open

Type  
Issue

Description  
Fair condition overall

Created  
Jun 29, 2021 7:43 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Photos



20210629\_194342\_photo  
Adam Cochran  
Jun 29, 2021 7:43 PM



20210629\_194331\_photo  
Adam Cochran  
Jun 29, 2021 7:43 PM

#25 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:44 PM  
matt.sumpster@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
2 days




#26 Masonry

Status  
Open

Type  
Issue

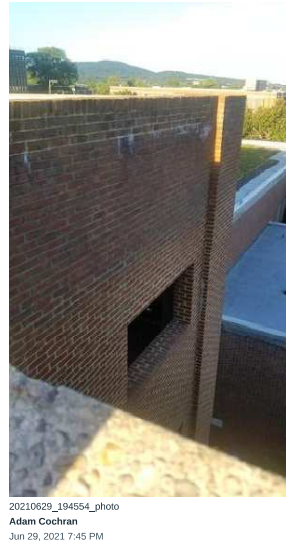
Created  
Jun 29, 2021 7:45 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Description  
Efflorescence

Photos



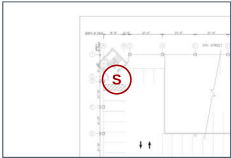
#27 Structural

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:49 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
15 days



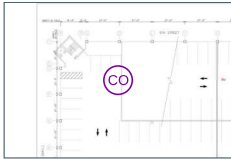
#28 Corrosion of metals

Status  
Open

Created  
Jun 29, 2021 7:50 PM  
matt.sumpter@kimley-horn.com

Type  
Issue

Sheet  
Level 4



Photos



20210629\_195036\_photo  
Matt Sumpter  
Jun 29, 2021 7:50 PM

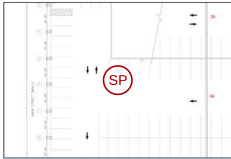
#29 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 29, 2021 7:52 PM  
matt.sumpter@kimley-horn.com

Type  
Issue

Sheet  
Level 4



Schedule Impact  
a day

Photos



20210629\_195227\_photo  
Matt Sumpter  
Jun 29, 2021 7:52 PM

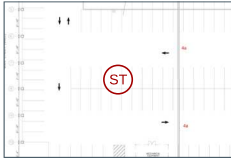
#30 Striping

Status  
Open

Created  
Jun 29, 2021 7:53 PM  
matt.sumpter@kimley-horn.com

Type  
Issue

Sheet  
Level 4



Photos



20210629\_195349\_photo  
Matt Sumpter  
Jun 29, 2021 7:53 PM

#31 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 29, 2021 7:53 PM  
adam.cochran@kimley-horn.com

Type  
Issue

Sheet  
Level 4



Description  
Beside patch

Photos



20210629\_195420\_photo  
Adam Cochran  
Jun 29, 2021 7:54 PM

#32 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:54 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
3 days



#33 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:56 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
4 days



#34 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:57 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days



#35 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:57 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days





#36 Spall / Delamination / Exposed Rebar

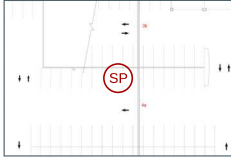
Status  
Open

Type  
Issue


Description  
Small spall...joint sealant around patch is failed

Created  
Jun 29, 2021 7:59 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Photos



20210629\_195951\_photo  
Adam Cochran  
Jun 29, 2021 7:59 PM

#37 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 7:59 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
3 days

Photos



20210629\_195951\_photo  
Matt Sumpter  
Jun 29, 2021 7:59 PM


#38 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue


Created  
Jun 29, 2021 8:01 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
2 days

Photos



20210629\_200105\_photo  
Matt Sumpter  
Jun 29, 2021 8:01 PM

#39 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Description  
Between patches

Created  
Jun 29, 2021 8:03 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Photos



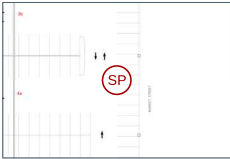
#40 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:03 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
a day

Photos



#41 Spall / Delamination / Exposed Rebar

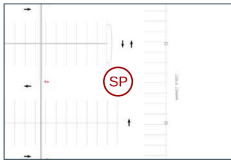
Status  
Open

Type  
Issue

Description  
Failed patch

Created  
Jun 29, 2021 8:05 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Photos



#42 Signage

Status

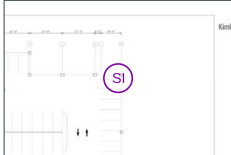
Open

Created

Jun 29, 2021 8:06 PM  
matt.sumpter@kimley-horn.com

Sheet

Level 4



Photos



#43 Spall / Delamination / Exposed Rebar

Status


Open

Created

Jun 29, 2021 8:07 PM  
matt.sumpter@kimley-horn.com

Sheet

Level 4



Schedule Impact  
15 days

Photos



#44 Spall / Delamination / Exposed Rebar

Status

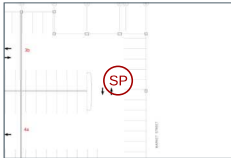
Open

Created

Jun 29, 2021 8:07 PM  
adam.cochran@kimley-horn.com

Sheet

Level 4



Photos



#45 Spall / Delamination / Exposed Rebar

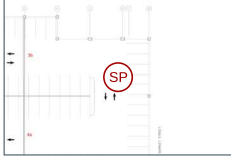
Status  
Open

Type  
Issue


Description  
Between patches

Created  
Jun 29, 2021 8:08 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Photos



20210629\_200836\_photo  
Adam Cochran  
Jun 29, 2021 8:08 PM


#46 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:08 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
a day

Photos



20210629\_200820\_photo  
Matt Sumpter  
Jun 29, 2021 8:08 PM

#47 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:09 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



Photos



20210629\_200942\_photo  
Adam Cochran  
Jun 29, 2021 8:09 PM

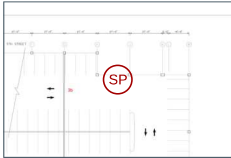
#48 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue


Created  
Jun 29, 2021 8:09 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days

Photos



20210629\_200953\_photo  
Matt Sumpter  
Jun 29, 2021 8:09 PM



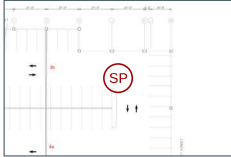
#49 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:10 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4





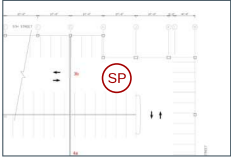
#50 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:11 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4





Schedule Impact  
3 days

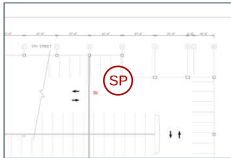
#51 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:11 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
2 days




#52 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:12 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
18 days

#53 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:12 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4



#54 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:13 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days

#55 Expansion joint

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:14 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 4





20210629\_201434\_photo  
Adam Cochran  
Jun 29, 2021 8:14 PM

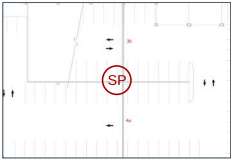
#56 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:15 PM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 4



Schedule Impact  
2 days

Photos



20210629\_201535\_photo  
Matt Sumpter  
Jun 29, 2021 8:15 PM

#104 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Description  
Delamination next to patch

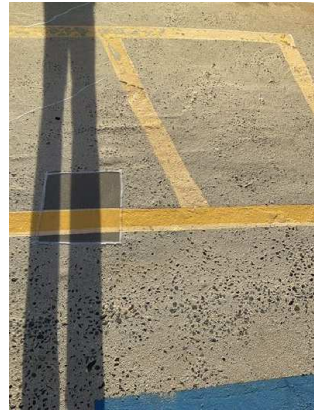
Created  
Jun 29, 2021 9:39 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level 4



Schedule Impact  
4 days

Photos



20210629\_192025\_photo  
Joey DiSerafino  
Jun 29, 2021 7:20 PM

#106 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Description  
Failed patch

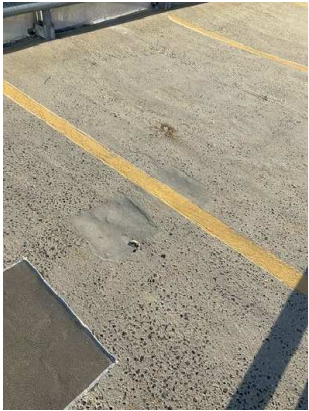
Created  
Jun 29, 2021 9:39 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level 4



Schedule Impact  
5 days

Photos



20210629\_192130\_photo  
Joey DiSerafino  
Jun 29, 2021 7:21 PM



#107 Spall / Delamination / Exposed Rebar


Status  
Open

Type  
Issue

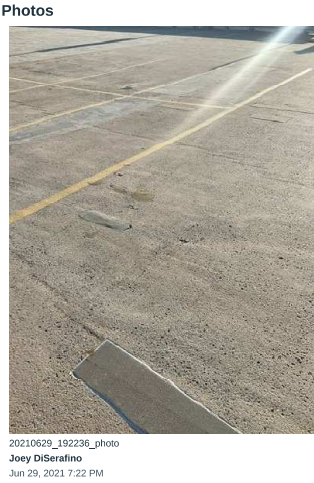
Description  
Delamination

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
3 months



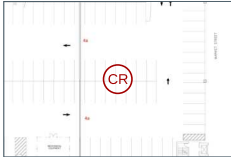
#108 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
6 days



#109 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
a day




#110 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



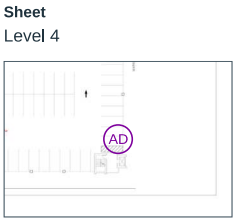
Schedule Impact  
5 days



#111 ADA compliance

Status  
Open

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com



Description

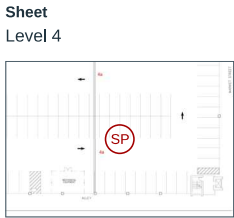
Sign mounted too low on wall



#112 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com



Description

Delamination next to patch



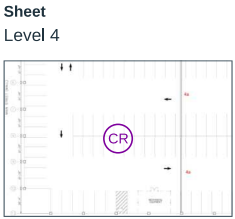
Schedule Impact

4 days

#113 Crack

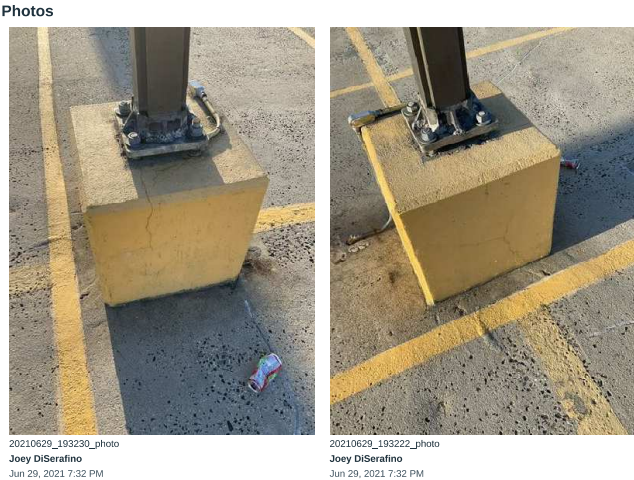
Status  
Open

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com



Schedule Impact

20 days



#114 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days



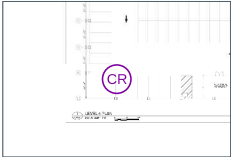
#115 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
6 days




#116 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
6 days



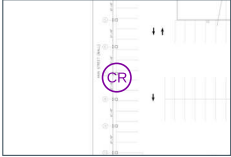
#117 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
6 days





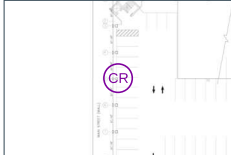
#118 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:40 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
3 days

Photos



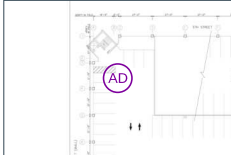
#119 ADA compliance

Status  
Open

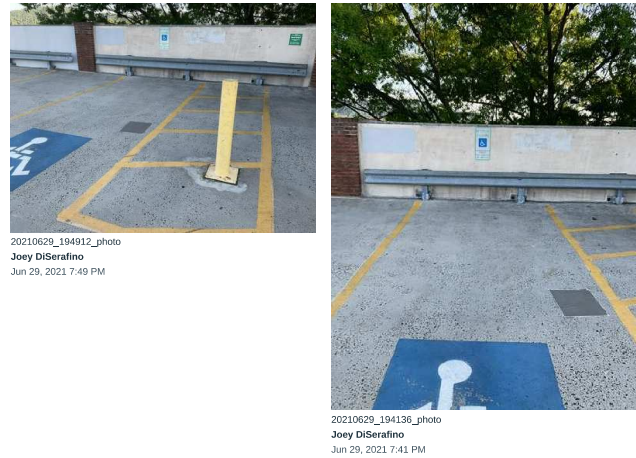
Type  
Issue

Created  
Jun 29, 2021 9:41 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Photos



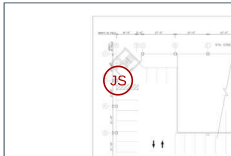
#120 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:41 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
6 days

Photos



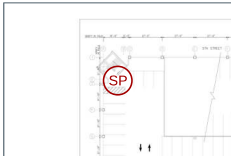
#121 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

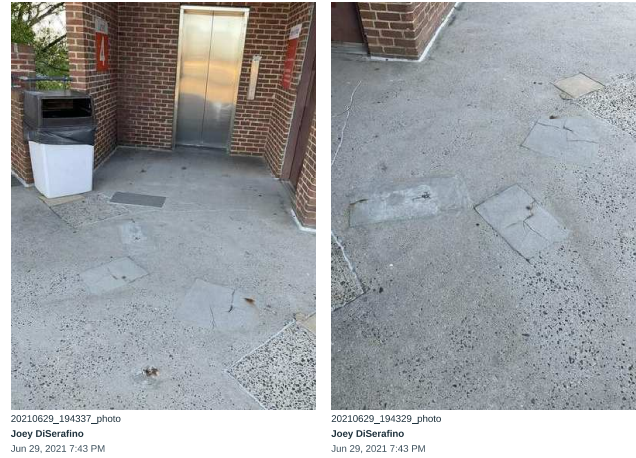
Created  
Jun 29, 2021 9:41 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
13 days

Photos



#122 Structural

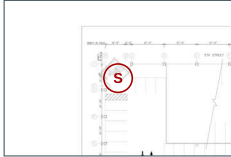
Status  
Open

Type  
Issue

Description  
Corroded brick lintel

Created  
Jun 29, 2021 9:44 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Photos



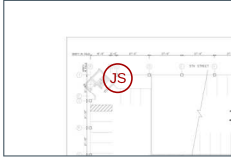
#123 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:45 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Photos



#124 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:45 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days

Photos



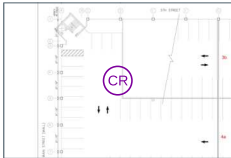
#125 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:45 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Photos





#126 Spall / Delamination / Exposed Rebar

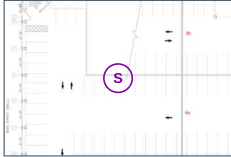
Status  
Open

Type  
Issue



Description  
Anchor rods at light pole  
corroded

Created  
Jun 29, 2021 9:45 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Photos



20210629\_195244\_photo  
Joey DiSerafino  
Jun 29, 2021 7:52 PM

20210629\_195230\_photo  
Joey DiSerafino  
Jun 29, 2021 7:52 PM

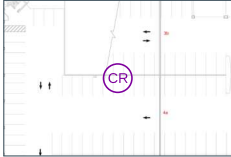
#127 Crack

Status  
Open

Type  
Issue


Created  
Jun 29, 2021 9:45 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
7 days

Photos



20210629\_195333\_photo  
Joey DiSerafino  
Jun 29, 2021 7:53 PM


#128 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue


Created  
Jun 29, 2021 9:56 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days

Photos



20210629\_195501\_photo  
Joey DiSerafino  
Jun 29, 2021 7:55 PM

#129 Operational

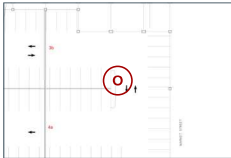
Status  
Open

Type  
Issue


Description  
Bollard caps missing

Created  
Jun 29, 2021 9:56 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Photos



20210629\_195658\_photo  
Joey DiSerafino  
Jun 29, 2021 7:56 PM


#130 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:56 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
3 days



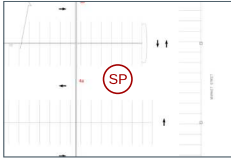
#131 Spall / Delamination / Exposed Rebar

Status  
Open

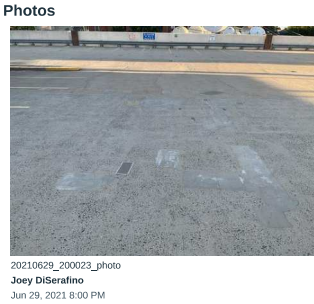
Type  
Issue

Created  
Jun 29, 2021 9:56 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
a year



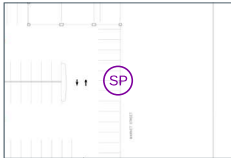
#132 Spall / Delamination / Exposed Rebar

Status  
Open

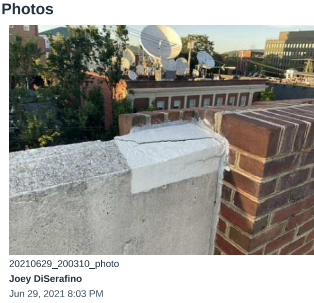
Type  
Issue

Created  
Jun 29, 2021 9:56 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
4 days



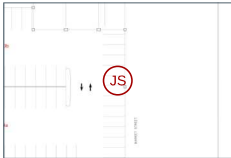
#133 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:56 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
5 days



#134 Crack

Status

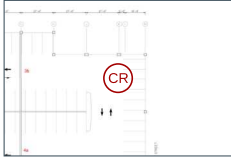
Open

Created

Jun 29, 2021 9:56 PM  
joey.diserafino@kimley-horn.com

Sheet

Level 4



Schedule Impact  
8 days

Photos



#135 Spall / Delamination / Exposed Rebar

Status


Open

Created

Jun 29, 2021 9:56 PM  
joey.diserafino@kimley-horn.com

Sheet

Level 4



Schedule Impact  
4 days

Photos



#136 Spall / Delamination / Exposed Rebar

Status

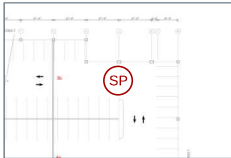
Open

Created

Jun 29, 2021 9:56 PM  
joey.diserafino@kimley-horn.com

Sheet

Level 4



Schedule Impact  
15 days

Photos



#138 Spall / Delamination / Exposed Rebar

Status

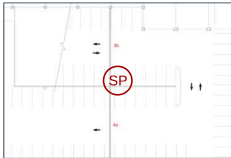
Open

Created

Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

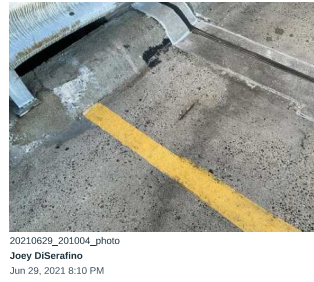
Sheet

Level 4



Schedule Impact  
3 days

Photos



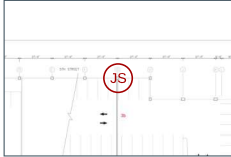
#139 Joint sealant / CJ

Status  
Open

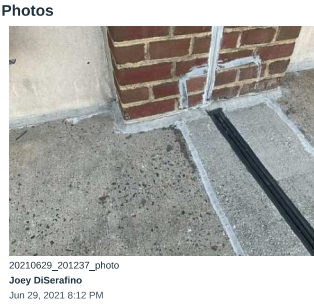
Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
4 days



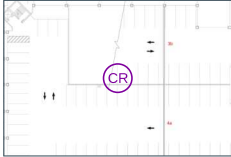
#140 Crack

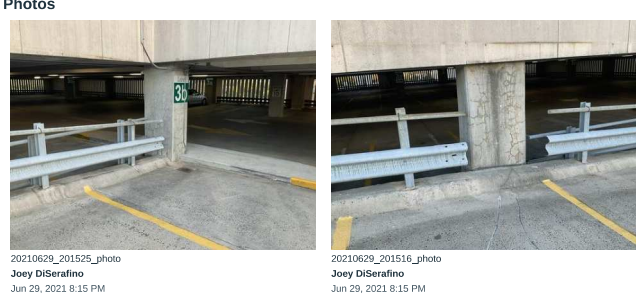
Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4





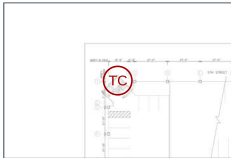
#235 Traffic coating

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 10:00 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
4 days

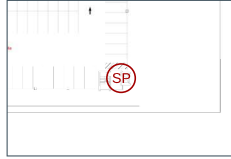


#300 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level 4



Schedule Impact  
10 days

Photos



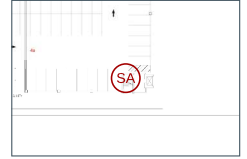
20210630\_094715\_photo  
Joey DiSerafino  
Jun 30, 2021 9:47 AM

#301 Safety items

Status  
Open

Created  
Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level 4



Description  
34.5" height and rail spacing  
>4"

Photos



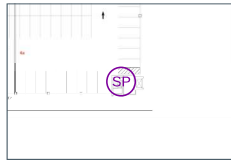
20210630\_094816\_photo  
Joey DiSerafino  
Jun 30, 2021 9:48 AM

#302 Spall / Delamination / Exposed Rebar

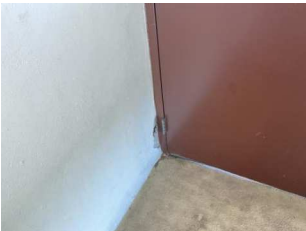
Status  
Open

Created  
Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-  
horn.com

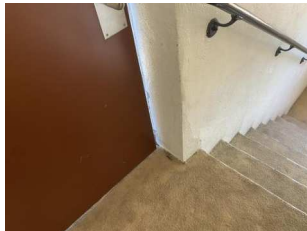
Sheet  
Level 4



Photos



20210630\_094915\_photo  
Joey DiSerafino  
Jun 30, 2021 9:49 AM



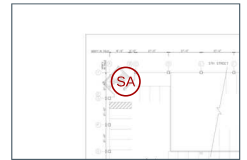
20210630\_094902\_photo  
Joey DiSerafino  
Jun 30, 2021 9:49 AM

#309 Safety items

Status  
Open

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level 4



Description  
34.5" height and rail spacing  
>4"



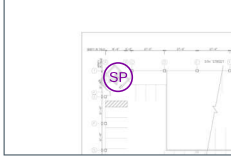
#310 Spall / Delamination / Exposed Rebar

Status  
Open

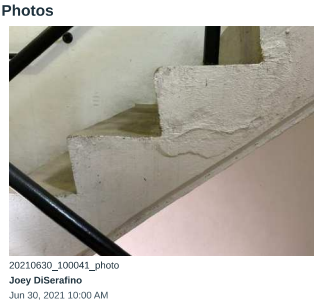
Type  
Issue

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 4



Schedule Impact  
4 days



#57 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:18 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
5 days



#59 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:19 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
a day



#60 Spall / Delamination / Exposed Rebar

Status  
Open

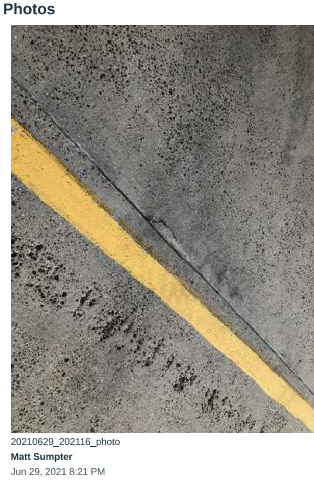
Type  
Issue

Created  
Jun 29, 2021 8:21 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
a day



#61 Vehicular restraint

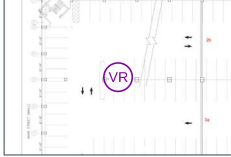
Status  
Open

Type  
Issue


Description  
Openings are greater than 4 inches wide for pedestrian restraint

Created  
Jun 29, 2021 8:23 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Photos



20210629\_202333\_photo  
Matt Sumpter  
Jun 29, 2021 8:23 PM

#62 General

Status  
Open


Type  
Issue

Photos

Created  
Jun 29, 2021 8:23 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 3





20210629\_202407\_photo  
Adam Cochran  
Jun 29, 2021 8:24 PM

#63 Spall / Delamination / Exposed Rebar

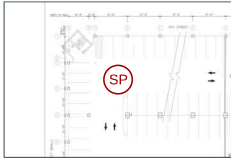
Status  
Open


Type  
Issue

Photos

Created  
Jun 29, 2021 8:30 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3





20210629\_203101\_photo  
Matt Sumpter  
Jun 29, 2021 8:31 PM

Schedule Impact  
2 days

#64 Crack

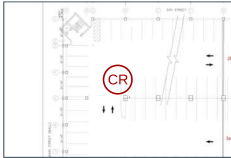
Status  
Open

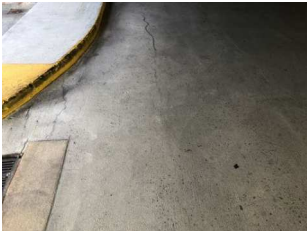
Type  
Issue

Photos

Created  
Jun 29, 2021 8:31 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3





20210629\_203149\_photo  
Matt Sumpter  
Jun 29, 2021 8:31 PM

Schedule Impact  
12 days

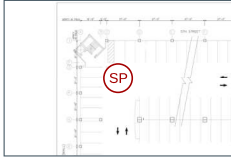
#65 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:32 PM  
adam.cochran@kimley-  
horn.com

Sheet  
Level 3



Photos



20210629\_203233\_photo  
Adam Cochran  
Jun 29, 2021 8:32 PM

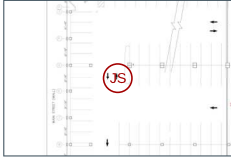
#66 Joint sealant / CJ

Status  
Open

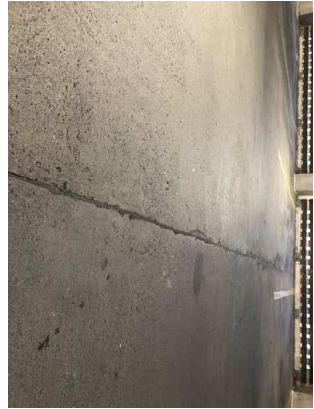
Type  
Issue

Created  
Jun 29, 2021 8:33 PM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 3



Photos



20210629\_203314\_photo  
Matt Sumpter  
Jun 29, 2021 8:33 PM

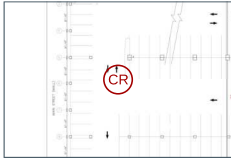
#67 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:33 PM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 3



Schedule Impact  
5 days

Photos



20210629\_203342\_photo  
Matt Sumpter  
Jun 29, 2021 8:33 PM

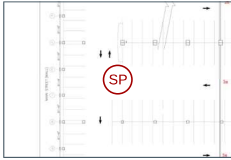
#68 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:34 PM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 3



Schedule Impact  
4 days

Photos



20210629\_203444\_photo  
Matt Sumpter  
Jun 29, 2021 8:34 PM



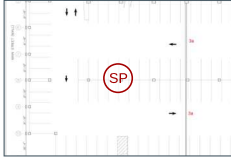
#69 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:37 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 3





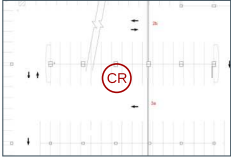
#70 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:37 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
a month



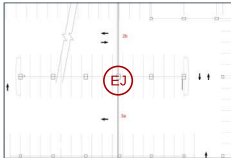
#71 Expansion joint

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:41 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 3





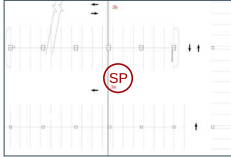
#72 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:41 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
2 days



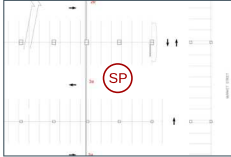
#73 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:42 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
2 days



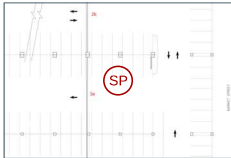
#74 Spall / Delamination / Exposed Rebar

Status  
Open

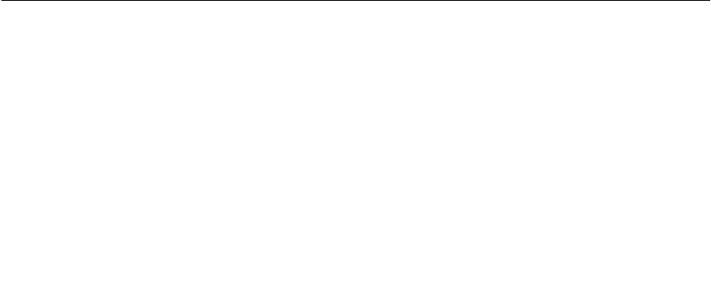
Type  
Issue

Created  
Jun 29, 2021 8:42 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
a day



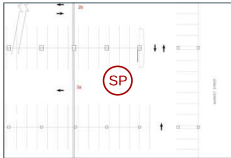
#75 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:44 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
3 days



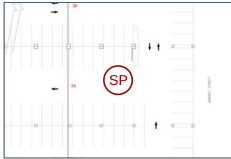
#76 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:44 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 3



Photos



20210629\_204433\_photo  
Adam Cochran  
Jun 29, 2021 8:44 PM

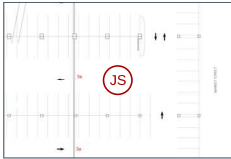
#77 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:44 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Photos



20210629\_204458\_photo  
Matt Sumpter  
Jun 29, 2021 8:45 PM

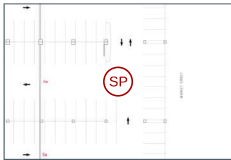
#78 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:47 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 3



Photos



20210629\_204716\_photo  
Adam Cochran  
Jun 29, 2021 8:47 PM

#79 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:47 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
2 days

Photos



20210629\_204746\_photo  
Matt Sumpter  
Jun 29, 2021 8:47 PM

#80 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:50 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
2 days




#81 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:50 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
22 days



#82 Spall / Delamination / Exposed Rebar

Status  
Open

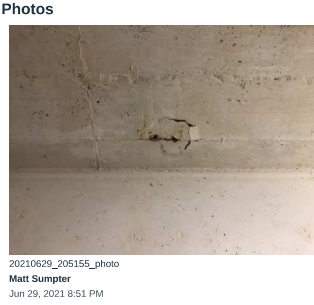
Type  
Issue

Created  
Jun 29, 2021 8:51 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
2 days




#83 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:52 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
22 days



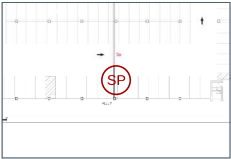
#84 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:53 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
a day

Photos



20210629\_205311\_photo  
Matt Sumpter  
Jun 29, 2021 8:53 PM

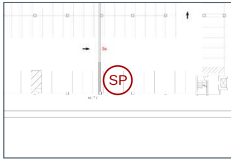
#85 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:54 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 3



Photos



20210629\_205427\_photo  
Adam Cochran  
Jun 29, 2021 8:54 PM

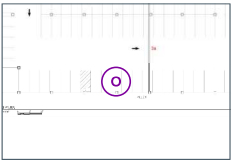
#86 Operational

Status  
Open

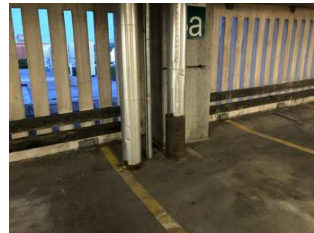
Type  
Issue

Created  
Jun 29, 2021 8:54 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Photos



20210629\_205458\_photo  
Matt Sumpter  
Jun 29, 2021 8:54 PM

#87 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:56 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
a day

Photos



20210629\_205644\_photo  
Matt Sumpter  
Jun 29, 2021 8:56 PM

#89 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:57 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
2 days

Photos



20210629\_205747\_photo  
Matt Sumpter  
Jun 29, 2021 8:57 PM

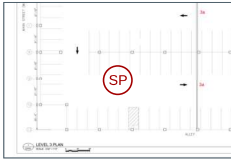
#90 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:57 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 3



Photos



20210629\_205805\_photo  
Adam Cochran  
Jun 29, 2021 8:58 PM

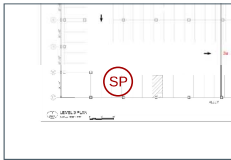
#91 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 8:58 PM  
matt.sumpter@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
5 days

Photos



20210629\_205839\_photo  
Matt Sumpter  
Jun 29, 2021 8:58 PM

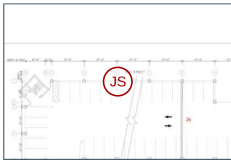
#141 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Photos



20210629\_201849\_photo  
Joey DiSerafino  
Jun 29, 2021 8:18 PM



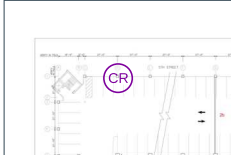
#142 Crack

Status  
Open

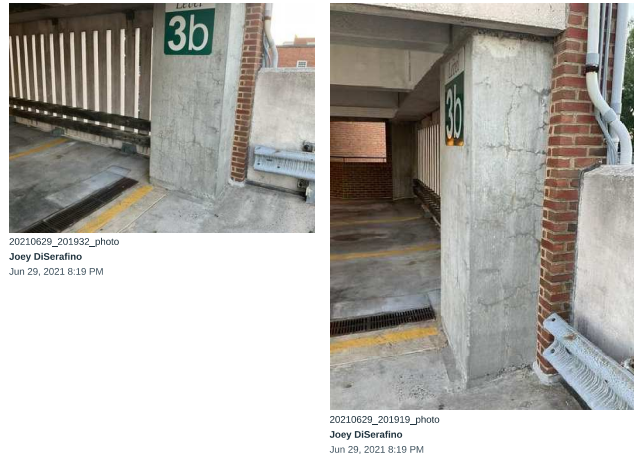
Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Photos



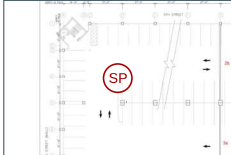
#143 Spall / Delamination / Exposed Rebar

Status  
Open

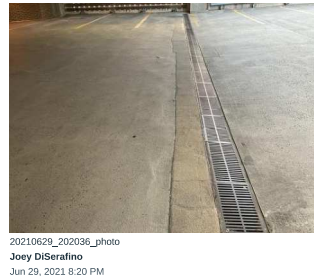
Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Photos



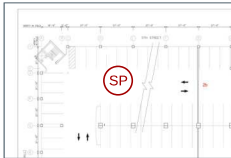
#144 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Description  
Failed patch

Schedule Impact  
7 days

Photos



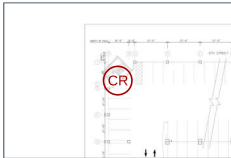
#145 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
4 days

Photos



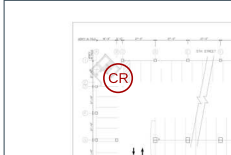
#146 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
10 days

Photos



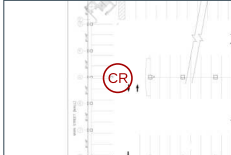
#147 Crack

Status  
Open

Type  
Issue

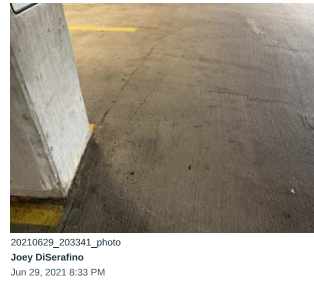
Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
20 days

Photos



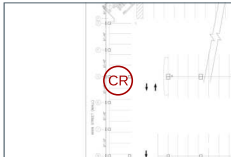
#148 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
5 days

Photos



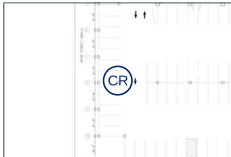
#149 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Description  
4 ft ea side

Schedule Impact  
8 days

Photos





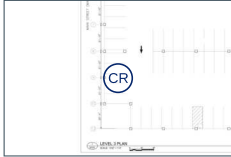
#150 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
3 days

Photos



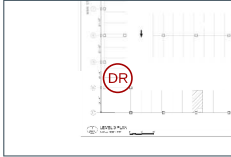
#151 Waterproofing

Status  
Open

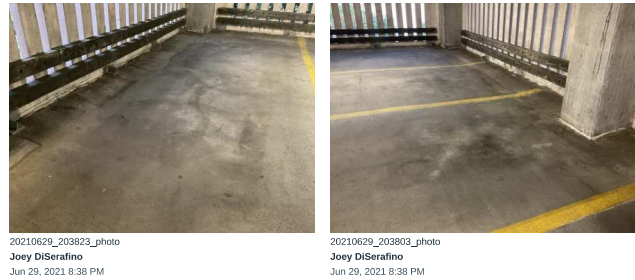
Type  
Issue

Created  
Jun 29, 2021 9:57 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Photos



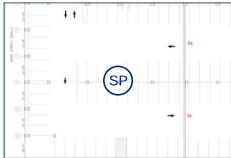
#152 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Photos



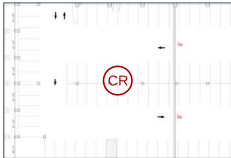
#153 Crack

Status  
Open

Type  
Issue

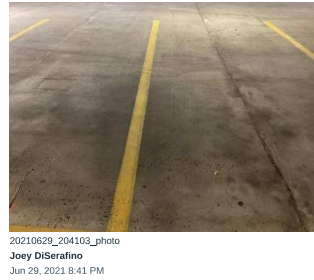
Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
7 years

Photos



#154 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
15 days



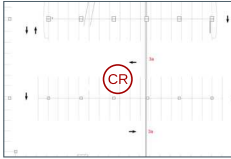
#155 Crack

Status  
Open

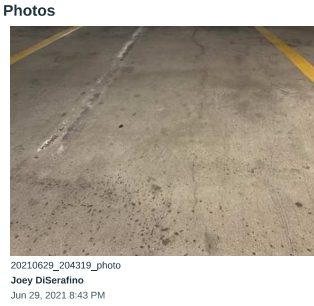
Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
15 days



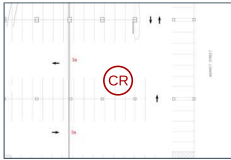
#156 Crack

Status  
Open

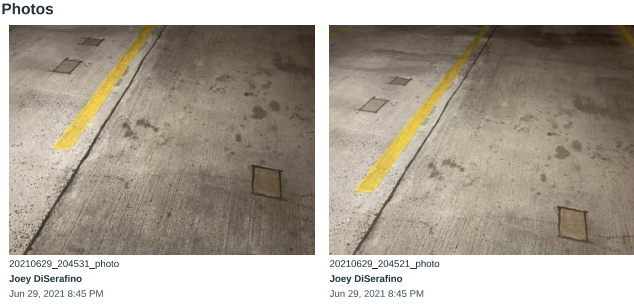
Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
20 days



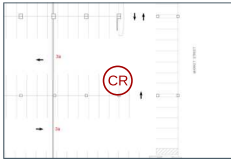
#157 Crack

Status  
Open

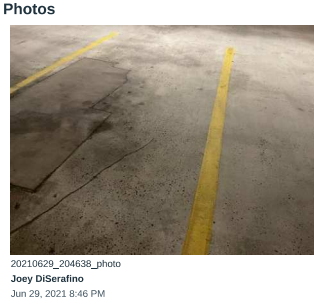
Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
20 days




#158 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
5 days



#159 Crack

Status  
Open

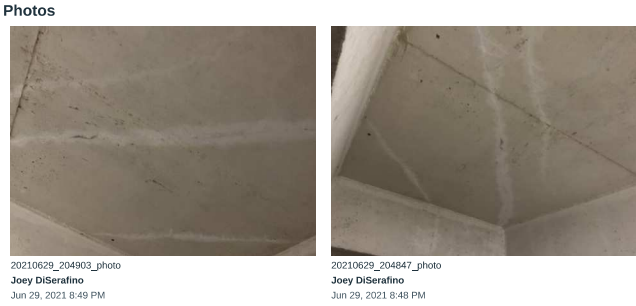
Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
20 days



#160 Spall / Delamination / Exposed Rebar

Status  
Open

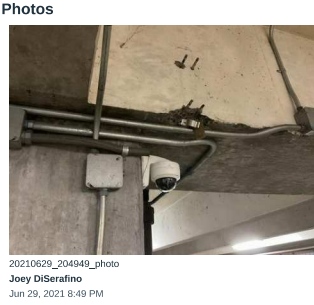
Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
3 days



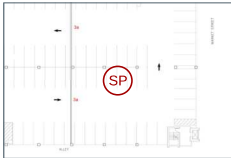
#161 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

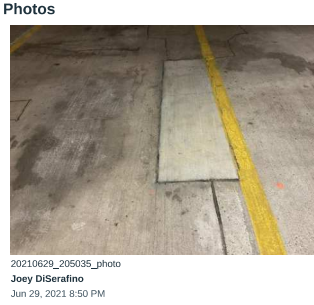
Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
7 days

Description  
Failed patch and spall



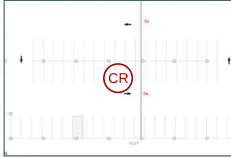
#162 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
2 days




#163 Spall / Delamination / Exposed Rebar

Status  
Open

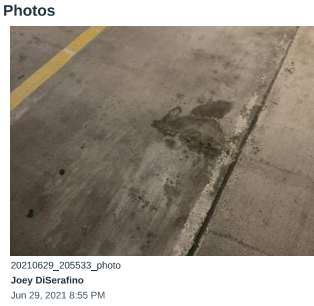
Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
4 days



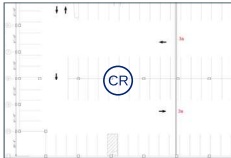
#164 Crack

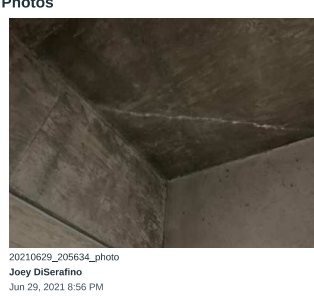
Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3






#165 Crack

Status  
Open

Type  
Issue

Created  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
8 days



#166 Joint sealant / CJ

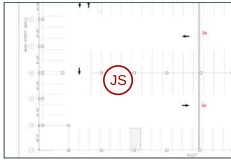
**Status**  
Open

**Created**  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

**Type**  
Issue

**Description**  
No sealant at patches

**Sheet**  
Level 3



**Schedule Impact**  
12 days

**Photos**



20210629\_205755\_photo  
Joey DiSerafino  
Jun 29, 2021 8:57 PM



20210629\_205747\_photo  
Joey DiSerafino  
Jun 29, 2021 8:57 PM

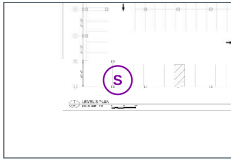
#167 Structural

**Status**  
Open

**Created**  
Jun 29, 2021 9:58 PM  
joey.diserafino@kimley-horn.com

**Type**  
Issue

**Sheet**  
Level 3



**Photos**



20210629\_210116\_photo  
Joey DiSerafino  
Jun 29, 2021 9:01 PM

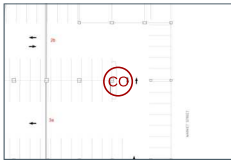
#168 Corrosion of metals

**Status**  
Open

**Created**  
Jun 30, 2021 8:07 AM  
matt.sumpter@kimley-horn.com

**Type**  
Issue

**Sheet**  
Level 3



**Photos**



20210630\_080303\_photo  
Matt Sumpter  
Jun 30, 2021 8:03 AM

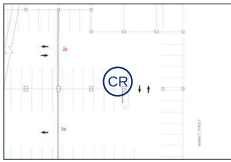
#170 Crack

**Status**  
Open

**Created**  
Jun 30, 2021 8:07 AM  
matt.sumpter@kimley-horn.com

**Type**  
Issue

**Sheet**  
Level 3



**Description**  
Hairline cracks in beam

**Schedule Impact**  
5 days

**Photos**



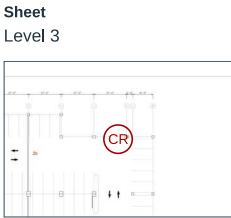
20210630\_080452\_photo  
Matt Sumpter  
Jun 30, 2021 8:04 AM

#171 Crack

Status  
Open

Created  
Jun 30, 2021 8:07 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
5 days

Photos

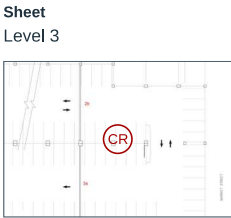


#172 Crack

Status  
Open

Created  
Jun 30, 2021 8:09 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
5 days

Photos

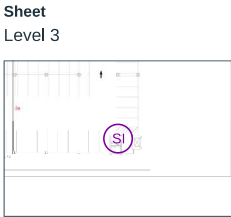


#244 Signage

Status  
Open

Created  
Jun 30, 2021 11:16 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Photos

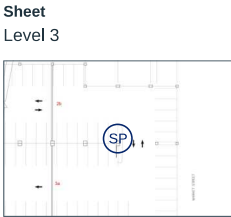


#246 Spall / Delamination / Exposed Rebar

Status  
Open

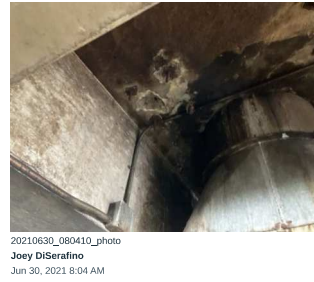
Created  
Jun 30, 2021 4:16 PM  
joey.diserafino@kimley-horn.com

Type  
Issue



Schedule Impact  
4 days

Photos





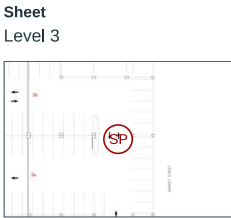
#249 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Description  
Next to patch

Created  
Jun 30, 2021 4:16 PM  
joey.diserafino@kimley-horn.com

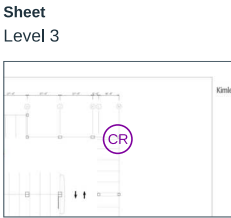


#251 Crack

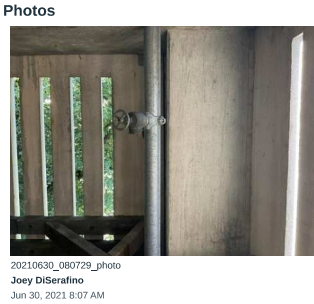
Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:16 PM  
joey.diserafino@kimley-horn.com



Schedule Impact  
20 days

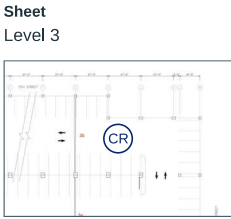


#254 Crack

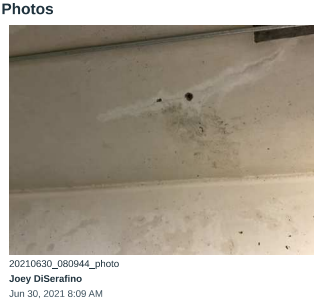
Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:16 PM  
joey.diserafino@kimley-horn.com



Schedule Impact  
4 days

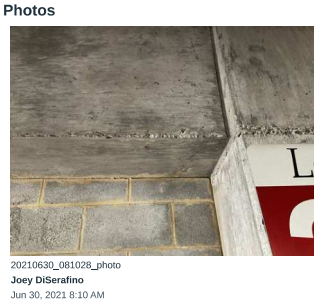
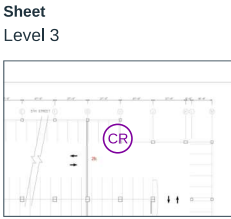


#255 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:16 PM  
joey.diserafino@kimley-horn.com



#256 Crack


Status  
Open

Type  
Issue

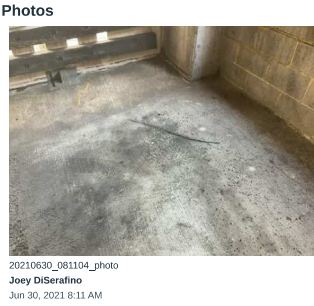
Description  
Crack was routed but not sealed

Created  
Jun 30, 2021 4:16 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
5 days



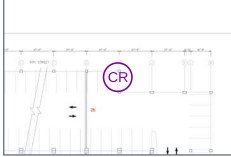
#257 Crack

Status  
Open

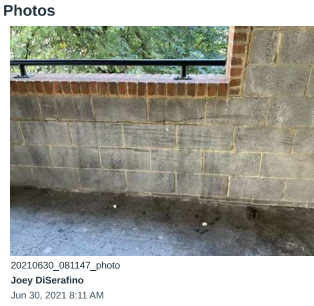
Type  
Issue

Created  
Jun 30, 2021 4:16 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
5 days



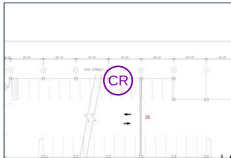
#259 Crack

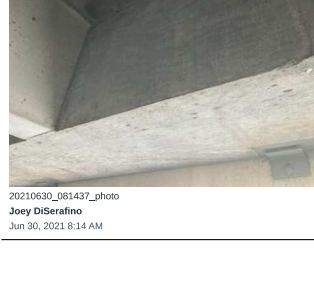
Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3





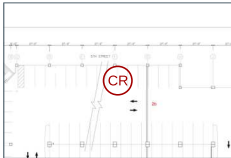
#260 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
6 days



#303 Spall / Delamination / Exposed Rebar

Status

Open

Created

Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-horn.com

Sheet

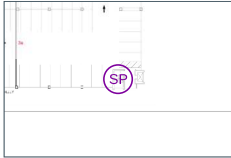
Level 3

Type

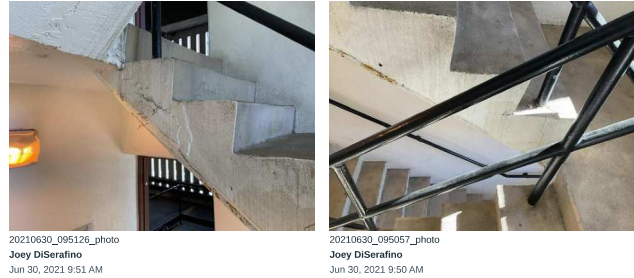
Issue

Description

4 locations



Photos



#304 Spall / Delamination / Exposed Rebar

Status

Open

Created

Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-horn.com


Sheet

Level 3

Type

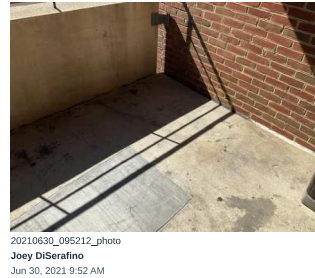
Issue

Description



Schedule Impact  
10 days

Photos



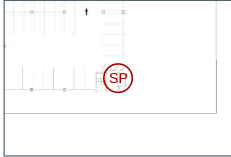
#305 Spall / Delamination / Exposed Rebar

Status  
Open

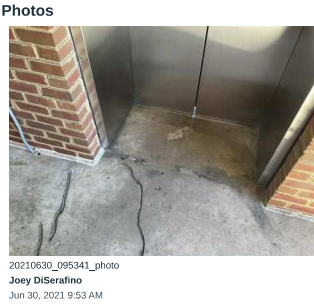
Type  
Issue

Created  
Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
5 days



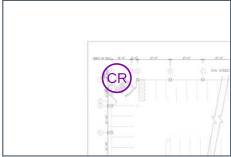
#311 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3






#316 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 3



Schedule Impact  
3 days

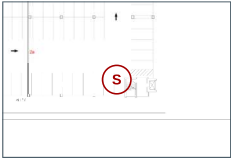
#5 Structural

Status  
Open

Type  
Issue

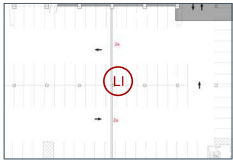
Created  
Jun 29, 2021 7:16 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 2

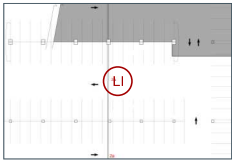




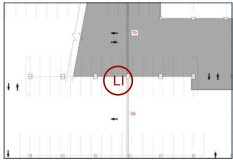
#92 Lighting

Status	Created	Sheet
Open	Jun 29, 2021 9:06 PM adam.cochran@kimley-horn.com	Level 2
Type		
Description	1.8 fc	

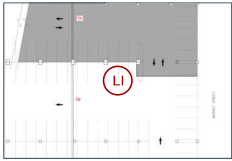
#93 Lighting

Status	Created	Sheet
Open	Jun 29, 2021 9:06 PM adam.cochran@kimley-horn.com	Level 2
Type		
Description	2.7 fc	

#94 Lighting

Status	Created	Sheet
Open	Jun 29, 2021 9:06 PM adam.cochran@kimley-horn.com	Level 2
Type		
Description	1.4 fc	

#95 Lighting

Status	Created	Sheet
Open	Jun 29, 2021 9:07 PM adam.cochran@kimley-horn.com	Level 2
Type		
Description	16 fc directly under light	

#96 Lighting


Status  
Open

Type  
Issue

Description  
3.9 fc between 4 lights

Created  
Jun 29, 2021 9:08 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 2



#97 Lighting

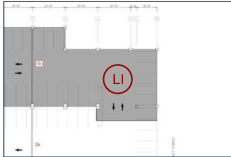
Status  
Open

Type  
Issue

Description  
6.5 fc between 4 lights

Created  
Jun 29, 2021 9:08 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 2



#98 Lighting

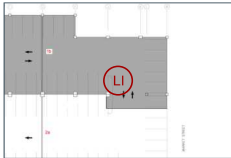
Status  
Open

Type  
Issue

Description  
18.6fc directly under

Created  
Jun 29, 2021 9:09 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 2



#99 General


Status  
Open

Type  
Issue


Description  
Lighting uniformity

Created  
Jun 29, 2021 9:09 PM  
adam.cochran@kimley-horn.com

Sheet  
Level 2



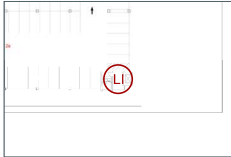
Photos



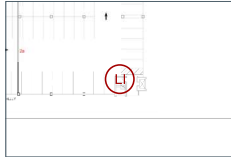
20210629\_210959\_photo  
Adam Cochran  
Jun 29, 2021 9:09 PM



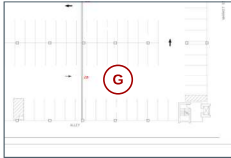
#101 Lighting

Status	Created	Sheet
Open	Jun 29, 2021 9:11 PM adam.cochran@kimley-horn.com	Level 2
Type		
Description		
4.9 fc		


#102 Lighting

Status	Created	Sheet
Open	Jun 29, 2021 9:11 PM adam.cochran@kimley-horn.com	Level 2
Type		
Description		
13.2 fc		

#103 General

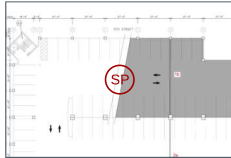
Status	Created	Sheet
Open	Jun 29, 2021 9:11 PM adam.cochran@kimley-horn.com	Level 2
Type		
Description		
Lighting uniformity		

Photos



20210629\_211210\_photo  
Adam Cochran  
Jun 29, 2021 9:12 PM

#173 Spall / Delamination / Exposed Rebar

Status	Created	Sheet
Open	Jun 30, 2021 8:15 AM matt.sumpter@kimley-horn.com	Level 2
Type		
Schedule Impact		
2 days		

Photos



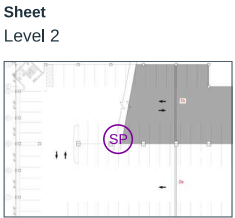
20210630\_081558\_photo  
Matt Sumpter  
Jun 30, 2021 8:16 AM

#174 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:16 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
a day

Photos

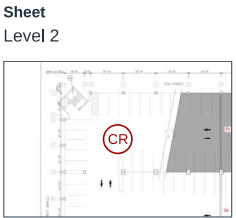


#175 Crack

Status  
Open

Created  
Jun 30, 2021 8:20 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
a month

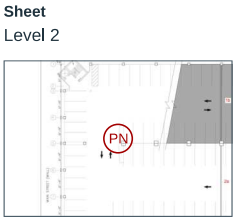
#176 Painting

Status  
Open

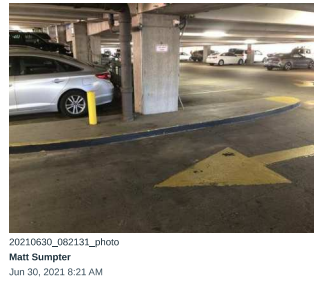
Created  
Jun 30, 2021 8:21 AM  
matt.sumpter@kimley-horn.com

Type  
Issue

Description  
Yellow paint needed on face of curb



Photos

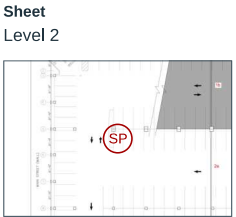


#177 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:22 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
a day

Photos

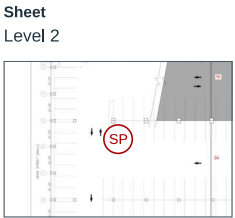


#178 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:22 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
a day

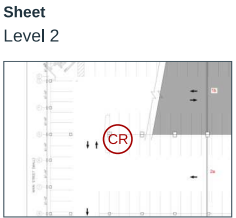


#179 Crack

Status  
Open

Created  
Jun 30, 2021 8:24 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



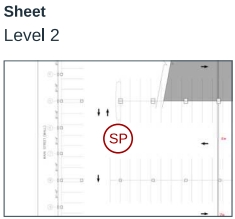
Schedule Impact  
18 days

#180 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:24 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
4 days

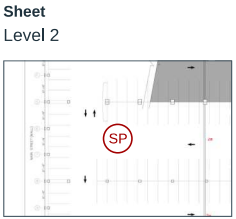


#181 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:26 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
4 days



#182 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 8:28 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
20 days

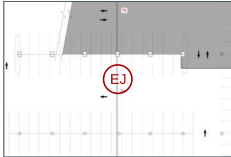
#183 Expansion joint

Status  
Open


Type  
Issue

Created  
Jun 30, 2021 8:30 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level 2



Photos



20210630\_083046\_photo

Matt Sumpter

Jun 30, 2021 8:30 AM

#184 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 8:32 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
15 days

Description  
Spalls over general area

Photos



20210630\_083313\_photo

Matt Sumpter

Jun 30, 2021 8:33 AM


#185 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue


Created  
Jun 30, 2021 8:35 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
2 days

Photos



20210630\_083517\_photo

Matt Sumpter

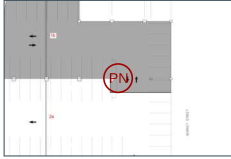
Jun 30, 2021 8:35 AM

#187 Painting

Status  
Open

Created  
Jun 30, 2021 8:36 AM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 2



Type  
Issue

Description  
Yellow paint needed on face  
of curb

Photos



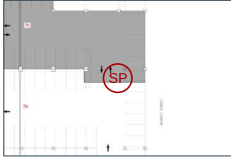
20210630\_083719\_photo  
Matt Sumpter  
Jun 30, 2021 8:37 AM

#188 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:38 AM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 2



Type  
Issue

Schedule Impact  
2 days

Photos



20210630\_083901\_photo  
Matt Sumpter  
Jun 30, 2021 8:39 AM

#189 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:40 AM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 2



Type  
Issue

Schedule Impact  
10 days

Photos



20210630\_084100\_photo  
Matt Sumpter  
Jun 30, 2021 8:41 AM

#191 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:42 AM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 2



Type  
Issue

Schedule Impact  
4 days

Photos



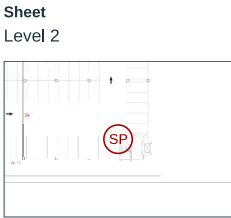
20210630\_084224\_photo  
Matt Sumpter  
Jun 30, 2021 8:42 AM

#192 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:44 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
10 days

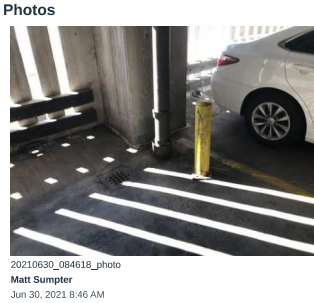
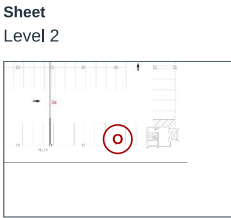


#193 Operational

Status  
Open

Created  
Jun 30, 2021 8:45 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



#194 Spall / Delamination / Exposed Rebar

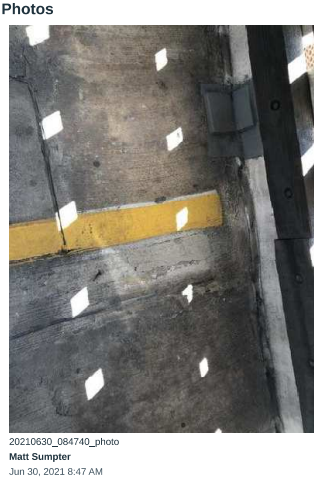
Status  
Open

Created  
Jun 30, 2021 8:47 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
2 days

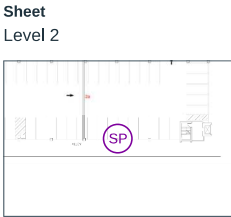


#195 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 8:47 AM  
matt.sumpter@kimley-horn.com

Type  
Issue



Schedule Impact  
2 days





#196 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 8:50 AM  
matt.sumpster@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
a day




#197 Operational

Status  
Open

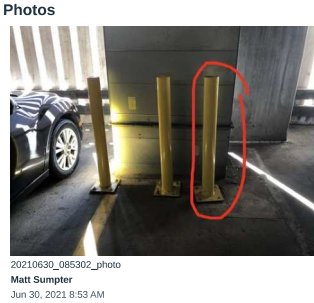
Type  
Issue

Created  
Jun 30, 2021 8:52 AM  
matt.sumpster@kimley-horn.com

Sheet  
Level 2



Description  
The bollard is loose and not anchored to the floor



#198 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 8:54 AM  
matt.sumpster@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
a day



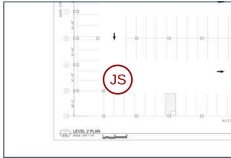
#199 Joint sealant / CJ

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 8:55 AM  
matt.sumpster@kimley-horn.com

Sheet  
Level 2



Description  
Old sealant in many previous spall repairs, typical



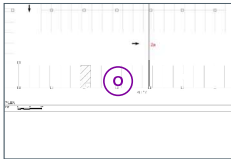
#200 Operational

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 9:00 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level 2



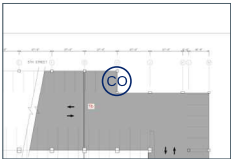
#201 Corrosion of metals

Status  
Open

Type  
Issue


Created  
Jun 30, 2021 9:05 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
6 days

Photos



20210630\_090538\_photo

Matt Sumpter

Jun 30, 2021 9:05 AM

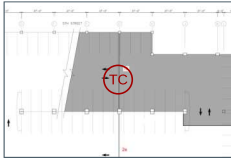
#202 Traffic coating

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 9:07 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level 2



Photos



20210630\_090733\_photo

Matt Sumpter

Jun 30, 2021 9:07 AM

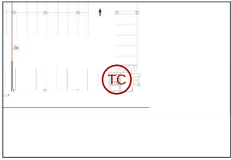
#233 Traffic coating

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 9:54 AM  
matt.sumpter@kimley-horn.com

Sheet  
Level 2



Photos



20210630\_095430\_photo

Matt Sumpter

Jun 30, 2021 9:54 AM

#236 Spall / Delamination / Exposed Rebar

Status  
Open

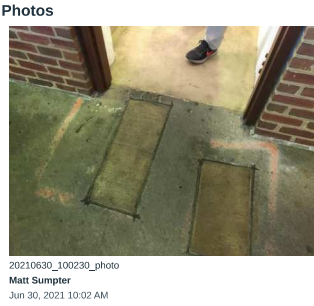
Type  
Issue

Created  
Jun 30, 2021 10:02 AM  
matt.sumpster@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
4 days



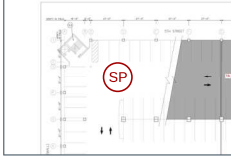
#261 Spall / Delamination / Exposed Rebar

Status  
Open

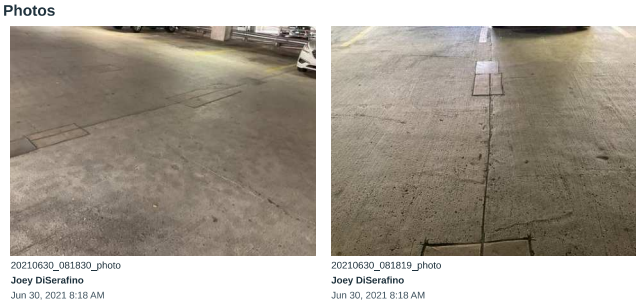
Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
2 months



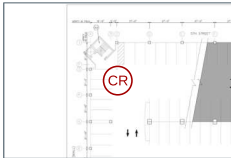
#262 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
6 days



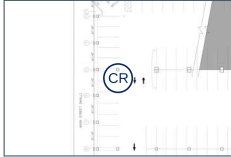
#263 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
6 days

Photos



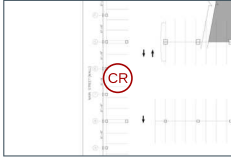
#264 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
6 days

Photos



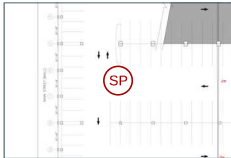
#265 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
4 days

Photos



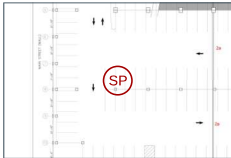
#266 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

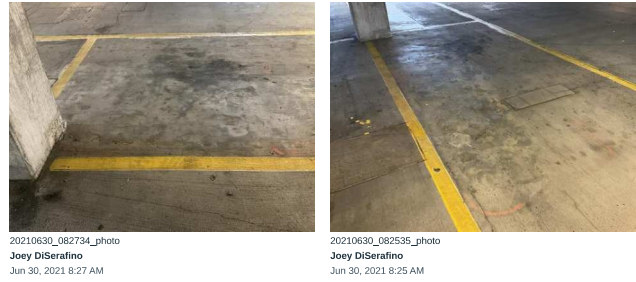
Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
a month

Photos




#267 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
3 days



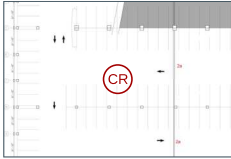
#268 Crack

Status  
Open

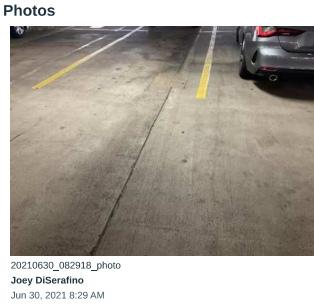
Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
a month



#269 Crack

Status  
Open

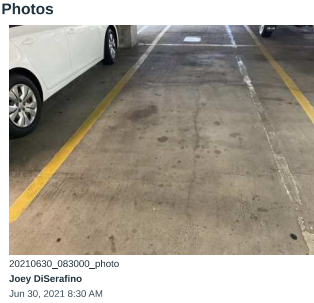
Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
25 days



#270 Spall / Delamination / Exposed Rebar

Status  
Open

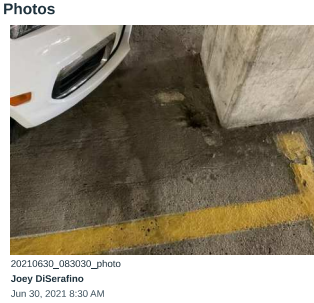
Type  
Issue

Created  
Jun 30, 2021 4:17 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
4 days





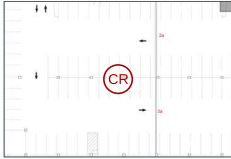
#271 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
8 days



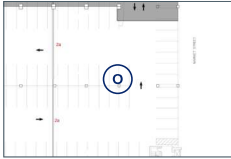
#272 Operational

Status  
Open

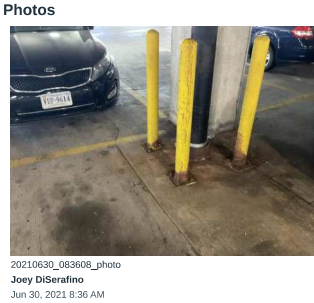
Type  
Issue

Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Description  
Rusted bollards




#273 Spall / Delamination / Exposed Rebar

Status  
Open

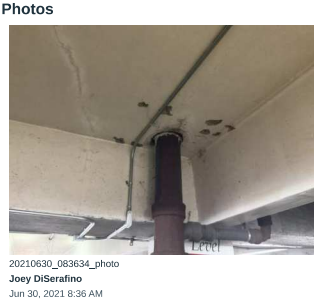
Type  
Issue

Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
6 days



#274 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
5 days





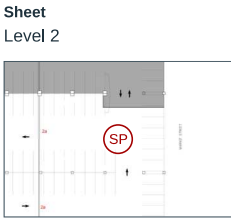
#275 Spall / Delamination / Exposed Rebar

Status  
Open

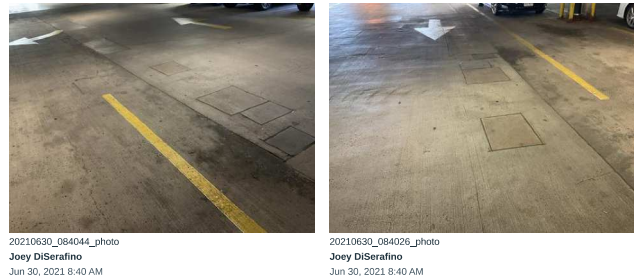
Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Type  
Issue

Description  
General area at patches, multiple locations



Photos

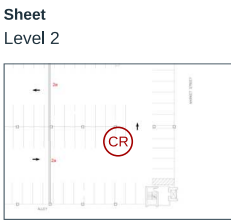


#276 Crack

Status  
Open

Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Type  
Issue



Schedule Impact  
4 days

Photos



#277 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

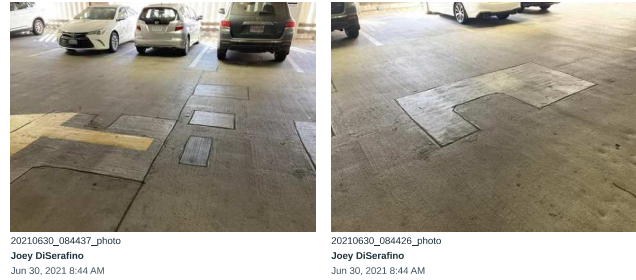
Type  
Issue

Description  
Misc areas around patches and a couple failed patches



Schedule Impact  
a month

Photos





20210630\_064414\_photo  
Joey DiSerafino  
Jun 30, 2021 8:44 AM

20210630\_064403\_photo  
Joey DiSerafino  
Jun 30, 2021 8:44 AM

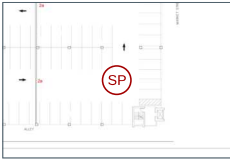
#278 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
6 days

Photos



20210630\_064539\_photo  
Joey DiSerafino  
Jun 30, 2021 8:45 AM

#279 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

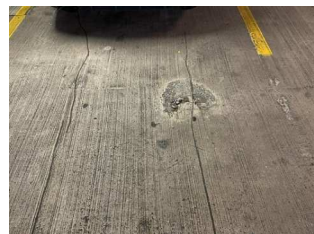
Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
7 days

Photos



20210630\_064648\_photo  
Joey DiSerafino  
Jun 30, 2021 8:46 AM

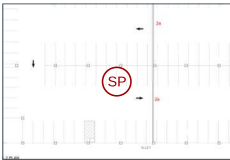
#280 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

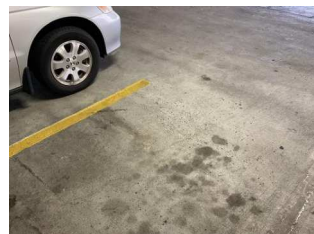
Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
8 days

Photos



20210630\_064900\_photo  
Joey DiSerafino  
Jun 30, 2021 8:49 AM



20210630\_064854\_photo  
Joey DiSerafino  
Jun 30, 2021 8:48 AM

#281 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Description  
Multiple areas around patches

Created  
Jun 30, 2021 4:18 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
2 months



#282 Spall / Delamination / Exposed Rebar

Status  
Open

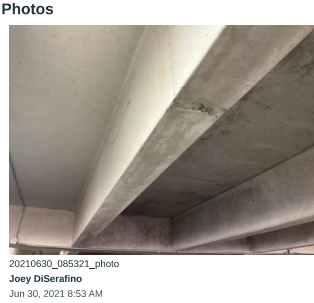
Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
4 days



#283 Crack

Status  
Open

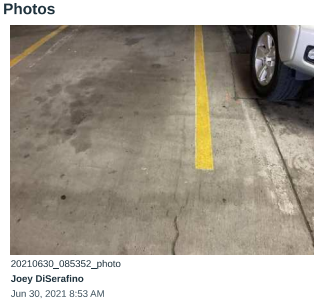
Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
8 days



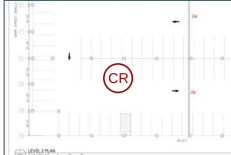
#284 Crack

Status  
Open

Type  
Issue

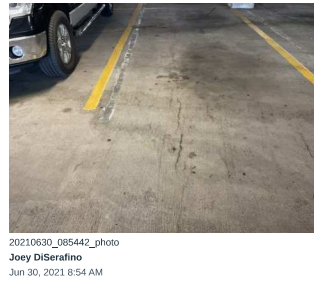
Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
a month

Photos




#285 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Description  
Delamination next to patch

Schedule Impact  
5 days

Photos



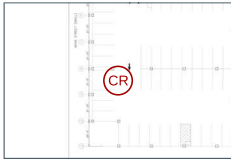
#286 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
20 days

Photos



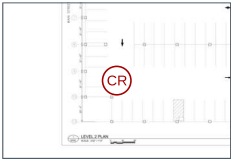
#287 Crack

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
10 days

Photos



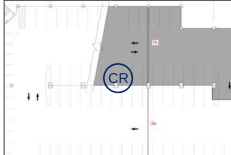
#288 Crack

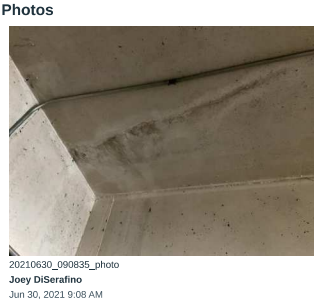
Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2






#306 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2



Schedule Impact  
8 days



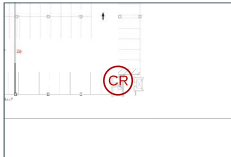
#307 Crack

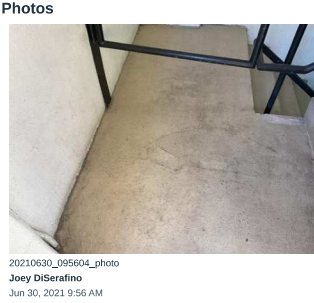
Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2






#308 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 2







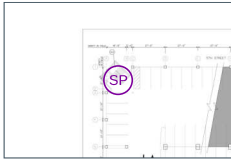
#312 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-  
horn.com

Type  
Issue

Sheet  
Level 2



Schedule Impact  
4 days

Photos



20210630\_100242\_photo  
Joey DiSerafino  
Jun 30, 2021 10:02 AM

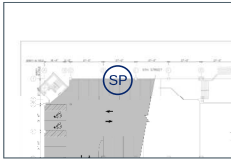
#203 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 9:11 AM  
matt.sumpter@kimley-  
horn.com

Type  
Issue

Sheet  
Level 1



Schedule Impact  
2 days

Photos



20210630\_091157\_photo  
Matt Sumpter  
Jun 30, 2021 9:11 AM

#205 ADA compliance

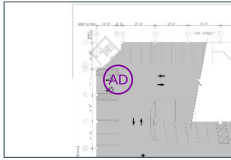
Status  
Open

Created  
Jun 30, 2021 9:13 AM  
matt.sumpter@kimley-  
horn.com

Type  
Issue

Description  
ADA signage does not  
comply with Virginia  
standards

Sheet  
Level 1



Photos



20210630\_091351\_photo  
Matt Sumpter  
Jun 30, 2021 9:13 AM

#207 Painting

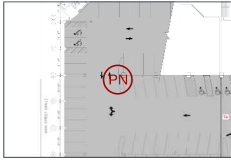
Status  
Open

Created  
Jun 30, 2021 9:16 AM  
matt.sumpter@kimley-  
horn.com

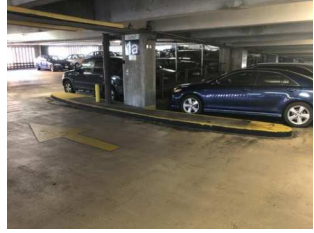
Type  
Issue

Description  
Curb is unpainted

Sheet  
Level 1



Photos



20210630\_091709\_photo  
Matt Sumpter  
Jun 30, 2021 9:17 AM

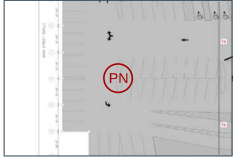


#209 Painting

Status  
Open

Created  
Jun 30, 2021 9:18 AM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 1



Type  
Issue

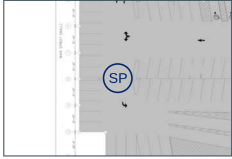
Description  
Curb is unpainted

#212 Spall / Delamination / Exposed Rebar

Status  
Open

Created  
Jun 30, 2021 9:18 AM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 1



Type  
Issue

Schedule Impact  
a day

Photos



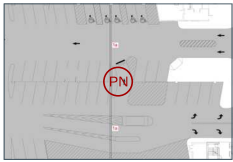
20210630\_091854\_photo  
Matt Sumpter  
Jun 30, 2021 9:18 AM

#213 Painting

Status  
Open

Created  
Jun 30, 2021 9:22 AM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 1



Type  
Issue

Description  
Face of curbs are not  
painted yellow for improved  
visibility

Photos



20210630\_092244\_photo  
Matt Sumpter  
Jun 30, 2021 9:22 AM

#215 ADA compliance

Status  
Open

Created  
Jun 30, 2021 9:23 AM  
matt.sumpter@kimley-  
horn.com

Sheet  
Level 1



Type  
Issue

Description  
ADA signage does not  
comply with Virginia  
standards

Photos

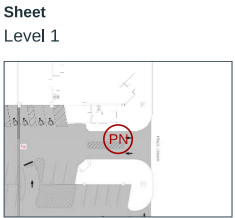


IMG\_7212  
Matt Sumpter  
Jun 30, 2021 9:23 AM

#217 Painting

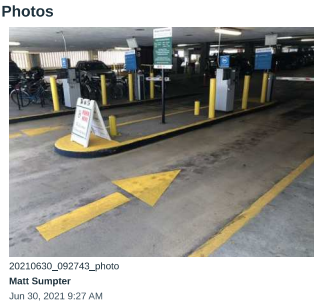
Status  
Open

Created  
Jun 30, 2021 9:27 AM  
matt.sumpter@kimley-horn.com



Description

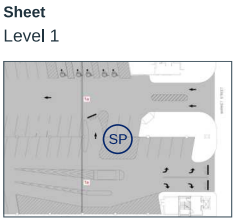
Face of curbs are not painted yellow for improved visibility



#220 Spall / Delamination / Exposed Rebar

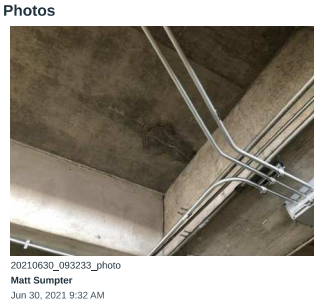
Status  
Open

Created  
Jun 30, 2021 9:32 AM  
matt.sumpter@kimley-horn.com



Schedule Impact

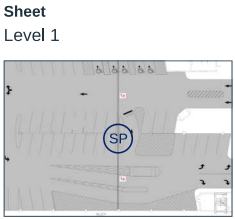
5 days



#222 Spall / Delamination / Exposed Rebar

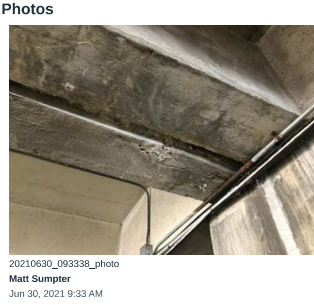
Status  
Open

Created  
Jun 30, 2021 9:33 AM  
matt.sumpter@kimley-horn.com



Schedule Impact

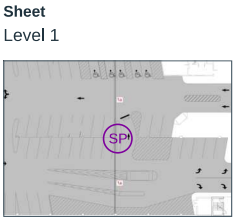
8 days



#224 Spall / Delamination / Exposed Rebar

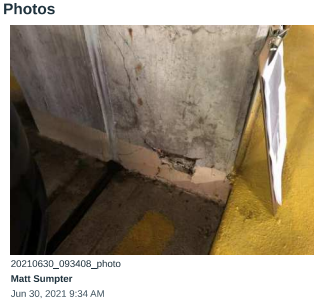
Status  
Open

Created  
Jun 30, 2021 9:33 AM  
matt.sumpter@kimley-horn.com



Schedule Impact

5 days



#227 Striping

Status


Open

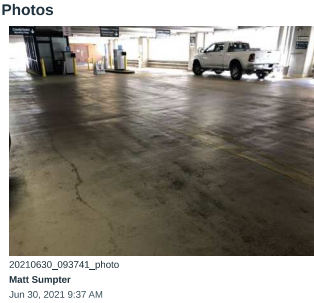
Created

Jun 30, 2021 9:37 AM  
matt.sumpter@kimley-horn.com

Sheet

Level 1





#228 Traffic coating

Status

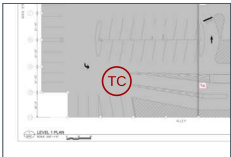
Open

Created

Jun 30, 2021 9:38 AM  
matt.sumpter@kimley-horn.com

Sheet

Level 1



Schedule Impact  
5 days



#238 Traffic coating

Status

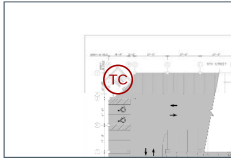
Open

Created

Jun 30, 2021 10:04 AM  
matt.sumpter@kimley-horn.com

Sheet

Level 1





#289 Crack

Status

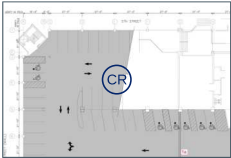
Open

Created

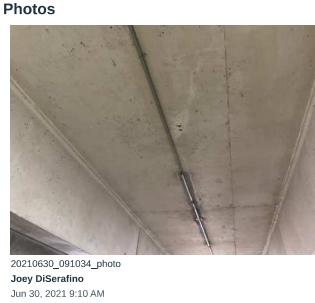
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet

Level 1



Schedule Impact  
12 days



#290 Spall / Delamination / Exposed Rebar

Status  
Open

Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 1



Schedule Impact  
2 days



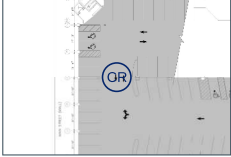
#291 Crack

Status  
Open

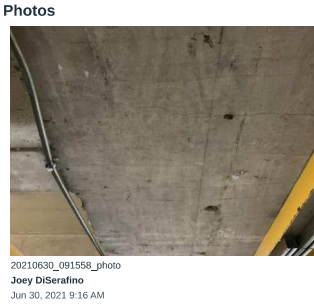
Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 1



Schedule Impact  
a month



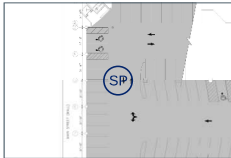
#292 Spall / Delamination / Exposed Rebar

Status  
Open

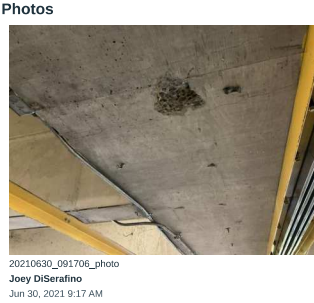
Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 1



Schedule Impact  
4 days



#293 Spall / Delamination / Exposed Rebar

Status  
Open

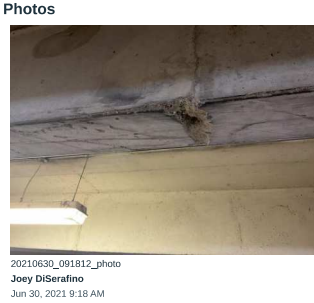
Type  
Issue

Created  
Jun 30, 2021 4:19 PM  
joey.diserafino@kimley-horn.com

Sheet  
Level 1



Schedule Impact  
4 days



#294 Crack

Status

Open

Created

Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-horn.com

Sheet

Level 1

Type

Issue

Description

Entire joist length

CR

Photos



20210630\_092903\_photo  
Joey DiSerafino  
Jun 30, 2021 9:29 AM

#295 Crack

Status

Open

Created

Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-horn.com

Sheet

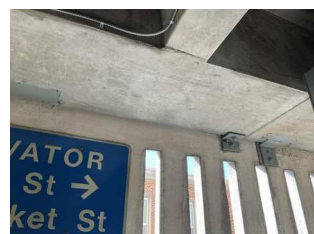
Level 1

Type

Issue

CR

Photos



20210630\_093145\_photo  
Joey DiSerafino  
Jun 30, 2021 9:31 AM

Schedule Impact  
8 days

#296 Spall / Delamination / Exposed Rebar

Status

Open

Created

Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-horn.com

Sheet

Level 1

Type

Issue

SP

Schedule Impact  
5 days

Photos



20210630\_093226\_photo  
Joey DiSerafino  
Jun 30, 2021 9:32 AM

#297 Crack

Status

Open

Created

Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-horn.com

Sheet

Level 1

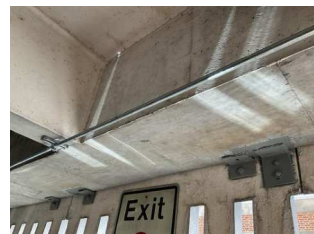
Type

Issue

CR

Schedule Impact  
8 days

Photos



20210630\_093339\_photo  
Joey DiSerafino  
Jun 30, 2021 9:33 AM

#298 Crack

Status

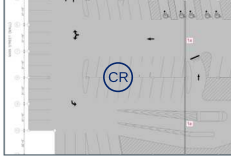
Open

Created

Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-horn.com

Sheet


Level 1



Schedule Impact

6 days

Photos



20210630\_093631\_photo

Joey DiSerafino

Jun 30, 2021 9:36 AM

#299 Crack

Status


Open

Created

Jun 30, 2021 4:20 PM  
joey.diserafino@kimley-horn.com

Sheet

Level 1




Description

Multiple on underside of girder

Schedule Impact

20 days

Photos



20210630\_093735\_photo

Joey DiSerafino

Jun 30, 2021 9:37 AM

#313 Spall / Delamination / Exposed Rebar

Status


Open

Created

Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-horn.com

Sheet

Level 1




Description

3 locations

Schedule Impact

5 days


Photos



20210630\_100445\_photo

Joey DiSerafino

Jun 30, 2021 10:04 AM



20210630\_100405\_photo

Joey DiSerafino

Jun 30, 2021 10:04 AM



20210630\_100329\_photo

Joey DiSerafino

Jun 30, 2021 10:03 AM

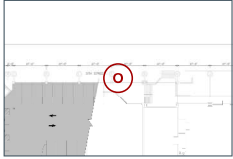


#314 Operational

Status  
Open

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level 1



Description  
Brick starting to separate  
from walkway on exterior

Photos



20210630\_101102\_photo  
Joey DiSerafino  
Jun 30, 2021 10:11 AM



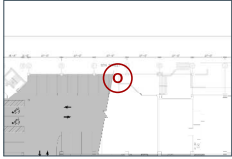
20210630\_101026\_photo  
Joey DiSerafino  
Jun 30, 2021 10:10 AM

#315 Operational

Status  
Open

Created  
Jun 30, 2021 4:21 PM  
joey.diserafino@kimley-  
horn.com

Sheet  
Level 1



Description  
Low railing (<42" high)

Photos



20210630\_101202\_photo  
Joey DiSerafino  
Jun 30, 2021 10:12 AM

## APPENDIX D

## RATING GUIDELINES:

The following narrative provides a summary of the rating guidelines and brief definitions of some items that were observed in the garage and noted in this report.

**Very Good** - rating denotes no life-safety issues, no immediate loss of strength or performance, including aesthetics, and no short term changes in performance with regular maintenance and observation. An operational system is said to be in very good condition if the system is in working order with only regular cleaning or routine maintenance required. Minimal to no capital repairs are anticipated in the next 3 to 5 years.

**Good** – rating denotes no life-safety issues, no anticipated loss of strength or performance, including aesthetics, and no short term changes in performance with regular maintenance and observation. A structural system is said to be in good condition if there is minor concrete damage, minimal rust, and minor leaks or leaching. An operational system is said to be in good condition if the system is in good working order with minor cleaning or routine maintenance required. Some repairs may be necessary within the next 3 years.

**Fair** – rating denotes no life-safety issues and functional performance but repairs are needed to maintain the current level of service. There are some aesthetic issues and inconveniences to patrons. Without repairs, the deterioration will continue to accelerate. Fair condition is assigned to the structural system if moderate damage, rust, leaks, or leaching is found in several locations or if severe damage is found in a few locations. These repairs are typically needed within the next 3 years.

**Poor** – rating denotes obvious problems, even to the casual observer, that without immediate remediation will result in further loss of structural member capacity. This condition can produce noticeable deflections in members, cause loose concrete to spall away, and presents the possibility of an unsafe condition to vehicles and/or pedestrians in the near future. The system may still be functioning at this state but repair costs will increase rapidly with the amount of time that passes before the item is corrected. The structural system is considered poor if severe damage is found in several locations. A poor assessment is assigned to any operational system that requires replacement. These repairs are typically recommended to be completed within the near term.

**N/A** – Not Applicable to this garage. While typically included as a part of our normal condition assessment, this particular category of items was not originally installed in this garage or was not part of the scope of this evaluation.

The photographs provided in this Appendix are sample representative photographs of each definition. These photographs are from both the Virginia Beach parking garages and other representative restoration garages and were not taken during the current condition assessment.

## DEFINITIONS:



Figure 1: Failing Concrete Patch



Figure 2: Concrete Delamination



Figure 3: Concrete Spall

1. **Patches** – Repairs to concrete that require a filler material, usually grout or repair mortar. Patches may be required due to the following causes: reinforcing steel corrosion, concrete spalling, concrete delaminations, failing grout pockets, or external forces, such as automobile collisions. See Figure 1.

2. **Delamination** – A delamination of concrete can occur when bleed (excess) water rises in concrete to just below the concrete surface as the concrete is curing or when embedded metals are corroding within the concrete. Both conditions tend to leave a thin layer of concrete that separates from the concrete body. Delaminations are detectable by sounding the suspected concrete with a metal object, such as a chain or hammer, and listening for the distinctive dead/hollow sound produced. The sounding instrument will produce a crisp metal ring when sounding over solid concrete. See Figure 2.

3. **Spall** – A spall is generally a piece of concrete that separates from the main body of the concrete member. Examples include a grout patch that has shrunk away from its pocket or a corner of a member that has broken off and is in the process of falling away or has fallen away already. See Figure 3.



Figure 4: Fine Crack



Figure 5: Medium Crack



Figure 6: Wide Crack

- 4. Cracking** – Cracks are qualitatively assigned values of Fine (F), Medium (M), or Wide (W). A fine crack is a hairline crack less than 0.01" thick and can sometimes be very hard to see. A medium crack is in between 0.01" and 1/32" wide and a wide crack is anything greater than 1/32" wide. Cracks are qualitatively rated according to their dominant characteristics. See Figure 4, Figure 5, and Figure 6.

ACI 224R-01 provides general guidelines for reasonable crack widths in reinforced concrete (see Table 4.1). Parking garages are typically exposed to humidity and sometimes deicing chemicals. Therefore, crack widths ranging from as small as 0.007" to 0.012", or greater, should be evaluated. It should be expected that a portion of the cracks in the structure will exceed these values.



Figure 7: Leaking and Leaching Concrete

5. **Leaking** – Leaking is determined by any observable sign of fluid flow through a crack or joint. See Figure 7.
6. **Leaching** – Leaching occurs when water flows through a crack, thereby dissolving away the components of the concrete, mainly calcium, and depositing it in the form of a whitish film or stalactite on the surface. The whitish film is also called efflorescence. See Figure 7.



Figure 8: Ponding Water

7. **Ponding** – Ponding water is the settling of water in low areas where it has no way to drain. This standing water not only presents a pedestrian safety hazard, but as water penetrates the concrete the deterioration mechanism is accelerated. See Figure 8.



Figure 9: Structural Steel Corrosion and Scaling

8. **Corrosion and Scaling** – Corrosion occurs when steel is oxidized. Air, water, and chlorides are some agents that typically cause steel to corrode. Scaling is a more advanced condition of corrosion and occurs when corrosion is deeper than the surface and flakes off in pieces or 'scales'. See Figure 9.

## APPENDIX E

### RECURRENCE INTERVALS

The following tables provide industry standard expectations on common recurrence intervals for typical repairs and maintenance items.

**Table E-1. Structural Repair Recurrence Intervals**

Structural Repairs	Interval (years)	Notes
Concrete repairs	5	Concrete repairs including spalls, delaminations, exposed reinforcement, and grout pockets will be necessary.
Concrete crack repairs	7	Cracks in the concrete occur at various points around the deck and will continue to need to be addressed.
Materials Testing	5	Chloride infiltration into the concrete increases over time. Consistent testing allows for the chloride ion concentrations to be tracked. Industry standard is at least every 5 years but may need to be increased based on visual observations.
Masonry repairs	5	Based on experience various masonry repairs including cracking, leaking, leaching, spalling, and delaminations will continue to occur.

**Table E-2. Waterproofing Repair Recurrence Intervals**

Waterproofing Repairs	Interval (years)	Notes
Replace joint sealant	5	Ongoing replacement of joint sealant throughout the deck is typical within the design service life. Typically warranty is 5 years, but service life should be longer than the warranty if properly maintained.
Repair expansion joints	2	Ongoing, minor repairs are typical in the life of an expansion joint.
Replace expansion joints	10	Typical warranties are 5 years but can sometimes be extended to 10 years. Service life should be longer than the typical warranty if properly maintained. Industry standards indicate service life of 8 to 12 years.
Replace traffic coating	8	Traffic coatings have a standard warranty of 5 years. Use and maintenance will dictate whether or not the service life can be extended further. Experience indicates that the service life is up to 8 years.
Apply penetrating silane sealer	5	Typical warranty is 5 years. Without extensive testing, it is difficult to know the effectiveness of existing sealer, but industry standards indicate a service life of 5 to 10 years.



**Table E-3. Operational Repair Recurrence Intervals**

Operational Repairs	Interval (years)	Notes
Repair/Replace barrier cables	5/20	Barrier cables and anchors are exposed to the weather and tend to deteriorate due to moisture intrusion. Cables have to be replaced along the entire run. Repairs are anticipated every 5 years and total replacement needed after about 20 years.
Restripe stalls and pavement markings	5	Painted floor graphics, including stripes, become worn off by traffic and fade due to dirt and subsequent cleanings.
Install new signage	15	Graphics tend to fade and deteriorate due to exposure to weather, sun, and environment.
Replace chain link fence	10	Chain link fencing should be repaired when rusted or the connections have deteriorated and it cannot perform the intended function
Replace CCTV cameras	10	In addition to the equipment simply beginning to wear out, the technology changes tend to render systems obsolete after the 10 years mark and it becomes more difficult getting maintenance and repairs parts.
Fire Extinguishers and Cabinets-replace	10	Extinguishers and cabinets replacements tend to be due to rust and becoming damaged from vandalism.
Bollard/Pipe guard repair or replace	5	Bollards and pipe guards should be repaired or replaced when they have been physically struck and damaged. These items can last for 10+ years without significant repairs other than repainting.

**Table E-4. Systems Repair Recurrence Intervals**

Systems Repairs	Interval (years)	Notes
Replace storm pipe system	25	With ongoing, minor repairs, the drainage system service life is typically greater than 25 years.
Flush and clean floor drains	5	Cleaning drainage system is necessary to help the system to continue to operate as intended.
Perform light meter survey	3	Regular light meter surveys should be performed to study the degradation of the lamps and fixtures over time.
Replace lighting system	15	Typical light fixture service life is 15 years. Ongoing maintenance for ballast (every 5 years) and lamps are required within this time frame.
Clean light fixtures and replace bulbs	5	Clean dirty light fixture and replace nonfunctioning bulbs regularly to avoid damaging the system.
Elevator Interior Upfit (overhaul)	15	Recurrence is based on experience of a typical parking deck elevator. At this interval, worn and outdated

Systems Repairs	Interval (years)	Notes
		components are typically updated and interior materials are upgraded
Elevators (replace)	30	Hydraulic equipment most likely require replacement at about 30 years, electrical components at 20-25 years, and traction equipment at 35 years of service depending on the ongoing maintenance plan implemented
Parking and Revenue Control System (PRCS)	10	Most warranties are 1 to 2 years on equipment and software. At the 10 year mark, technology and software have advanced enough that existing systems become obsolete, maintenance becomes increasingly more expensive, finding replacement parts becomes more difficult, and moving parts internally begin to wear out, even with continual maintenance.

**Table E-5. Aesthetic Repair Recurrence Intervals**

Aesthetic Repairs	Interval (years)	Notes
Power wash interior surface	3-5	Power washing the interior of the deck will be necessary to maintain a clean appearance throughout the deck.
Power wash façade surface	10	Cleaning the façade of the deck will be necessary to maintain the appearance.
Repaint interior concrete surfaces	10	Typical warranties are 1 to 3 years with an anticipated service life of 5 years. However, this may be extended due to being more aesthetic in nature.

Source on several items:

*“Parking Garage Maintenance Manual-Guide for Maintenance and Repairs”, Fifth Edition, Copyright 2015, National Parking Association (NPA) and the Parking Consultants Council (PCC)*

## APPENDIX F

### RESOURCES

The following are resources for reference. These resources have been referred to in part but may not fully reflect the documents used in the development of this condition assessment report.

1. "Parking Facility Maintenance Manual", Fifth Edition, Copyright 2015, National Parking Association (NPA) and the Parking Consultants Council (PCC)
2. Chrest, Anthony P.; Bhuyan, Sam et al. "Parking Structures: Planning, Design, Construction, Maintenance and Repair", Third Edition, Copyright 2001
3. "PCI Design Handbook, 8<sup>th</sup> Edition" 2017 Precast and Prestressed Concrete Institute
4. American Concrete Institute (ACI)
  - a. ACI 201.1R-08 Guide for Conducting a Visual Inspection of Concrete in Service
  - b. ACI 201.2R-16 Guide to Durable Concrete
  - c. ACI 224.1 R-07 Causes Evaluation and Repair of Cracks in Concrete Structures
  - d. ACI 318-14 Building Code Requirements for Structural Concrete
  - e. ACI 362.1R-12 Guide for Design and Construction of Durable Concrete Parking Structures
  - f. ACI 362.2R-00 Guide for Structural Maintenance of Parking Structures (Reapproved 2013)
  - g. ACI 364.1R-07 Guide for Evaluation of Concrete Structures Prior to Rehabilitation
  - h. ACI 365.1 R-17 Report on Service Life Prediction
  - i. ACI 423.4 R-14 Report on Corrosion and Repair of Unbonded Single-Strand Tendons
  - j. ACI 546 R-14 Guide to Concrete Repair
  - k. ACI 562-16 Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures (ACI 562-16) and Commentary
5. PTI Guide Specification, "Design, Construction, and Maintenance of Cast-in-Place Post-Tensioned Concrete Parking Structures", Copyright 2001, Post-Tensioning Institute (PTI).
6. "Guideline for Structural Condition Assessment of Existing Buildings", Copyright 2000, American Society of Civil Engineers (ASCE) and the Structural Engineering Institute (SEI).
7. "Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process", Edition Designation E 2018-15, Copyright 2015, American Society for Testing Materials (ASTM).
8. "2010 ADA Standards for Accessible Design" Copyright 2010, Department of Justice