

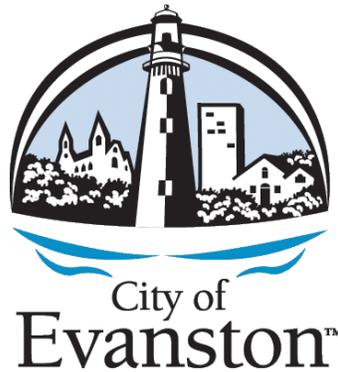
CITY OF EVANSTON
REQUEST FOR PROPOSAL

NUMBER: 25-29

For

Sherman Plaza Parking Garage Structural Assessment

May 15, 2025



PROPOSAL DEADLINE: 2:00 P.M., Tuesday, June 10, 2025

ELECTRONIC BID SUBMITTAL:

Bid responses will only be accepted electronically
via E-bidding through DemandStar (WWW.DEMANDSTAR.COM)

**It is highly recommended that new DemandStar users complete the account setup
process prior to project due date/time.**

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RETURN ALL EXHIBITS WITH RFP

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ADDITIONAL DOCUMENTS

Previous Report:Evanston Parking Garage Structural Assessment	124 pages
DemandStar- E-bidding Instructions.....	14 pages

CITY OF EVANSTON
NOTICE TO PROPOSERS

The City's Purchasing Office will receive proposals until 2:00 P.M. local time on **June 10, 2025**. Responses will only be accepted electronically via E-bidding through DemandStar (www.demandstar.com). Although registration is required, vendors can download solicitations and upload responses for free. Proposals shall cover the following:

Sherman Plaza Parking Garage Structural Assessment
RFP Number: 25-29

The City of Evanston's Public Works Agency is seeking proposals from experienced engineering firms for the structural assessment of the Sherman Plaza Parking Garage (1600 Sherman Avenue), to be assessed for structural integrity and preventative maintenance items to be identified in a comprehensive report.

The above item shall conform to the RFP on file in the Purchasing Office. Parties interested in submitting a proposal should contact the Purchasing Office to receive a copy of the RFP or see the City's website at: www.cityofevanston.org/business/bids-proposals/ or Demandstar at: www.demandstar.com.

The City (the City of Evanston) in accordance with the laws of the State of Illinois, hereby notifies all firms that it will affirmatively ensure that the contract(s) entered into pursuant to this notice will be awarded to the successful firm without discrimination on the grounds of race, color, religion, sex, age, sexual orientation marital status, disability, familial status or national origin. The City of Evanston reserves the right to reject any or all submittals or to accept the submittal(s) deemed most advantageous to the City.

The Evanston City Council also reserves the right to award the contract to an Evanston firm if that firm's bid is within 5% of the low bid.

Each Proposer shall be required to submit with his/her proposal a Disclosure of Ownership Interest Statement Form in accordance with Section 1-18-1 *et seq.* of the City Code. Failure to submit such information may result in the disqualification of such proposal.

Linda Thomas
Purchasing Specialist

CITY OF EVANSTON

Request for Proposal

1.0 INTRODUCTION

1.1 Background Information

The City of Evanston is a general purpose municipal government located in Cook County, Illinois. It is a home rule unit, as defined in the 1970 Illinois Constitution, and operates under the Council/Manager form of government to provide for the health, safety and welfare of Evanston residents. A mayor, elected city-wide, and nine Councilmembers elected by Ward, comprise the City Council. There are ten operating departments that provide a full array of services. The City has approximately 78,000 residents and a land area that covers 7.8 square miles.

The southern boundary of the City of Evanston borders the City of Chicago and is twelve miles north of downtown Chicago. The City is home to Northwestern University and Garrett Theological Seminary. In addition, the City is the home of two major teaching hospitals, St. Francis Hospital and Evanston Hospital, many corporations, service institutions, large national retailers and small entrepreneurial businesses.

The City of Evanston is requesting proposals from qualified engineering firms to perform a structural assessment of the Sherman Plaza Parking Garage. Previous reports have provided insight into the needs of this structure and informed projects for remediation. This structure needs to be re-evaluated and the reports need to be updated to provide current information.

The Sherman Plaza Parking Garage was built in 2005. This structure is post-tensioned concrete with 13 levels and an area of 580,000 square feet. The upper 12 levels are owned and operated by the City of Evanston and are in the scope of work. This is a public parking garage. This parking structure was also built as a part of a mixed-use development. The ground level is partially maintained by the City of Evanston. The areas on the ground level maintained by others will not be included in the assessment. Additionally, there are areas nested within the parking structure that are owned by the Condo Association. These nested areas will be assessed and require additional coordination because they are not public space. The funding for the assessment of Sherman Plaza Garage is shared, so it is important to separate the costs for the work in this garage.

1.2 General Information

Contact with City personnel in connection with this RFP shall not be made other than as specified in this RFP. Unauthorized contact of any City personnel may be cause for rejection of a proposal.

Prior to the submittal of a proposal, Proposers are advised to carefully examine

- the contract documents
- project scope and work tasks to be accomplished

- specifications
- submittal requirements
- insurance requirements and required documentation

Proposers are advised to become thoroughly familiar with all conditions, instructions and specifications governing this RFP. Proposals shall be made in accordance with these instructions. Proposals shall be submitted on the forms provided by the City

The City will not be liable in any way for any costs incurred by respondents in replying to this Request for Proposal.

2.0 SCOPE OF SERVICES

It is recommended that Respondents elaborate or add to the proposed scope of work to ensure a comprehensive project scope is prepared. This project will require a structural engineer licensed in the State of Illinois.

Investigation

The selected consultant is to perform the following tasks to orient the consultant to the building:

- Review the documents in City of Evanston's possession to sufficient level of detail to understand the structure and the previous structural issues that have been encountered and the resulting remediation. Review is to include original construction drawings, subsequent construction drawings, shop submittals, and other documentation of prior maintenance and restoration work. AutoCAD files are available.
- Preliminary site visit and walkthrough of the building. Document the general condition of the structure and various structural members.
- Meet with City Staff to discuss any known issues.
- Prepare summary document describing the structure, the previous structural issues, and the remediation that was previously performed, and any currently known issues.

Structural Condition Appraisal

- Visual inspection and survey. Survey the building, identify cracks and issues that need detailed inspection. Perform detailed visual survey of the cladding anchors, ceiling, floor, and structure identifying all conditions that may impact the durability of the structure.
- Perform delamination survey of the entire floor slab surface.
- The parking garage must remain in operation during all work. Portions of the parking areas of the garage can be shut down for the visual inspection. The drive aisle must remain in use at all times. The garage can only have two floors shut down on any given day. Any closures must be coordinated with City Staff.
- Detailed inspection. Any items that were identified by the consultant which require more detailed inspection shall be inspected further. Consultant will be responsible for procuring any necessary lifts for detailed inspection.

- Non-destructive testing and material testing. It is assumed that some non-destructive testing and/or material testing will be required. The extent and nature of this testing will be determined by the consultant during the visual inspection and survey and detailed inspection. This may include ground penetrating radar, and core tests. This testing will be performed out of a testing allowance. The type and extent of the testing will be informed by the visual inspection and survey. Therefore, the cost will be negotiated after the survey is completed and will be paid for with the allowance.

Structural Condition Report & Summary Presentation

- Consultant will prepare a report documenting all findings, identifying issues, and providing guidance for the solutions.
- Provide a cost estimate for recommended solutions and work with City Staff to tailor recommended work to the City's budgetary constraints. This will involve multiple phased projects over the course of several years, and an ala carte cost estimate from which the City Staff and the Consultant can identify the items requiring immediate attention.
- Provide general recommendations for a restoration and maintenance program to help inform future work.
- Present a summary of findings to City Staff.

3.0 INSURANCE

Consultant shall carry and maintain at its own cost with such companies as are reasonably acceptable to City all necessary liability insurance (which shall include as a minimum the requirements set forth below) during the term of this Agreement, for damages caused or contributed to by Consultant, and insuring Consultant against claims which may arise out of or result from Consultant's performance or failure to perform the Services hereunder.

The consultant must provide an insurance certificate naming the City of Evanston as an additional insured and will provide a variety of insurances including:

- comprehensive general liability - \$3,000,000 combined single limit for each occurrence for bodily injury and property damage – designating the City as Additional Insured
- Workers Compensation - Statutory Limits
- Automobile Liability - \$1,000,000 per occurrence for all claims arising out of bodily injuries or death and property damages.
- errors and omissions or professional liability insurance - \$1,000,000

The surety and the insurance company must have not less than an A+ rating from the Alfred M. Best Co., Inc. and be approved by the City of Evanston.

Consultant's certificate of insurance shall contain a provision that the coverage afforded under the policy(s) will not be canceled or reduced without thirty (30) days prior written notice (hand delivered or registered mail) to City.

4.0 SUBMITTAL REQUIREMENTS

The City will no longer accept hard copy paper submittals for any solicitation. Responses will only be accepted electronically via E-bidding through DemandStar. Respondents are still required to complete all of the bid documents and provide all of the requested information in a pdf file(s). **Please refer to attached DemandStar e-bidding documents.**

ANY PROPOSALS RECEIVED AFTER THE SUBMITTAL DEADLINE, WILL BE NOT BE ACCEPTED. It is the sole responsibility of the proposer to insure that his or her proposal is delivered by the stated time. THE CITY IS NOT RESPONSIBLE FOR INCOMPLETE UPLOADED SUBMITTALS..

A. Cover Letter

The cover letter will include the following:

- introduction of firm signed by an authorized Principal of the firm
- name of firm
- address of firm
- phone number of the firm submitting the proposal
- include the name and signature of an authorized binding official who is authorized to answer questions regarding the firm's proposal

B. Qualifications and Experience of Firm and/or Team

- All respondents shall describe other contracts (at least 5, but no more than 10) similar in scope, size or discipline to the required services described herein, performed or undertaken within the past five years.
- The respondent must provide references, including name, address and telephone number of a contact person for each project identified and described.
- Indicate commencement dates, duration and type of operation.
- Provide a list of all Municipal clients in Illinois.

C. Project Manager(s) and Key Project Personnel

Clearly identify the professional staff person(s) who would be assigned as your Project Manager(s) and key personnel including resumes. The proposal should indicate the abilities, qualifications and experience of these individuals.

D. Fees

Provide a not-to-exceed cost by completing the Proposal Cost Table included with this RFP. Additionally, attach a fee breakdown to indicate the hours required by each team member and their hourly billing rate. Break down all costs by task and labor category and break out reimbursable direct costs separately. Reimbursable expenses are to be included in the overall contract price. Proposals must list the salary cost multiplier for all labor hours.

E. Contract

The City has attached its standard contract in Exhibit P. Identify all exceptions to the agreement that would prevent your Firm from executing it. The City shall not

consider or negotiate regarding exceptions submitted at any time after the submission of the Proposer's response.

5.0 ADDITIONAL SUBMISSION REQUIREMENTS

Return All Exhibits with RFP

6.0 M/W/D/EBE GOALS

The City has a goal of 25% of the contract amount for the participation and utilization of Minority-Owned, Women-Owned, Disadvantaged and Evanston-based businesses (M/W/D/EBEs) in completing a portion of the services required by the City. All respondents must submit a statement of the proposed involvement of M/W/D/EBEs in completing a portion of the required services. Provide a copy of the certification for M/W/D/EBEs that will assist in achieving the M/W/D/EBE goal with your submittal as well as the appropriate M/W/D/EBE forms or Request for Waiver. Any questions regarding M/W/D/EBE compliance should be submitted in writing to Tammi Nunez Purchasing Manager at tnunez@cityofevanston.org.

7.0 EVALUATION CRITERIA

The City will select the successful firm through an evaluation process based on the firm meeting the specifications which are outlined in this RFP. A review committee will review in detail all proposals that are received. During the evaluation process, the City may require a Proposer's representative to answer questions with regard to the proposal and/or make a formal presentation to the review committee. The review committee will make a recommendation to award the contract based on the criteria set forth below. This contract will be forwarded to the City Council for final approval.

The evaluation criteria listed below will be used in the selection of the successful Proposer.

- A. Qualifications and Expertise**
- B. Price**
- C. Project Approach**
- D. Organization and Completeness of Proposal**
- E. Willingness to Execute the City of Evanston's Professional Services Agreement**
- F. M/W/D/EBE Participation**

8.0 SELECTION PROCESS

The City will select a firm on the basis of the responsiveness of the proposal to the RFP submittal requirements, the evaluation criteria stated above and the demonstrated willingness to execute an acceptable written contract. The City reserves the right to reject any or all proposals, and to request written clarification of proposals and supporting materials from the Proposer.

While it is the intent of the City to award a single firm, the City reserves the right to award in part or in whole and to select multiple firms and/or individuals, depending on whichever decision is deemed to be most advantageous to the City.

Responses may be rejected if the firm fails to perform any of the following:

- A. Adhere to one or more of the provisions established in this Request for Proposal.
- B. Demonstrate competence, experience, and the ability to provide the services described in this Request for Proposal.
- C. Submit a response on or before the deadline and complete all required forms.
- D. To fulfill a request for an oral presentation.
- E. To respond to a written request for additional information.

Discussions and/or interviews may be conducted with responsible firms that have submitted proposals in order to clarify certain elements. All proposals shall be afforded fair and equal treatment with respect to any opportunity for clarification. In conducting discussion, there shall be no disclosure of information derived from proposals submitted by competing firms. The selection shall be done by the City's review committee and will be recommended to the City Council for final approval.

If the City is unable to reach any sort of agreement with the selected firm, the City will discontinue negotiations with the selected firm and begin negotiations with the firm ranked second and so on until agreement is reached.

The firm to be recommended to the City Council will be the one whose proposal is determined to be the most advantageous to the City in consideration of price and all other evaluation factors which are set forth in this Request for Proposal. No other factors or criteria not listed in this RFP shall be used in the evaluation.

9.0 PROPOSED SCHEDULE

The tentative schedule for this RFP and project process is as follows:

- | | |
|----------------------------------------|--------------------------|
| 1. RFP issued | <u>May 15, 2025</u> |
| 2. Last Day to submit questions..... | <u>May 26, 2025</u> |
| 3. Final Addendum Issued | <u>June 2, 2025</u> |
| 4. RFP Submission Due Date | <u>June 10, 2025</u> |
| 5. City Council Award of Contract..... | <u>July 28, 2025</u> |
| 6. Contract Effective | <u>August 11, 2025</u> |
| 7. Preliminary Report with Costs | <u>October 30, 2025</u> |
| 8. Project Completion..... | <u>November 24, 2025</u> |

10.0 QUESTIONS REGARDING RFP

All questions related to this RFP should be submitted in writing to Linda Thomas, Purchasing Specialist at lithomas@cityofevanston.org with a copy to Tim Kirkby, Project Manager at tkirkby@cityofevanston.org.

11.0 GENERAL TERMS AND CONDITIONS

A. Confidentiality

In connection with this Agreement, City may provide Consultant with information to enable Consultant to render the Services hereunder, or Consultant may develop confidential information for City. Consultant agrees (i) to treat, and to obligate Consultant's employees to treat, as secret and confidential all such information whether or not identified by City as confidential, (ii) not to disclose any such information or make available any reports, recommendations and /or conclusions which Consultant may make for City to any person, firm or corporation or use the same in any manner whatsoever without first obtaining City's written approval, and (iii) not to disclose to City any information obtained by Consultant on a confidential basis from any third party unless Consultant shall have first received written permission from such third party to disclose such information.

Pursuant to the Illinois Freedom of Information Act, 5 ILCS 140/7(2), records in the possession of others whom the City has contracted with to perform a governmental function are covered by the Act and subject to disclosure within limited statutory timeframes (five (5) working days with a possible five (5) working day extension). Upon notification from the City that it has received a Freedom of Information Act request that calls for records within the Consultant's control, the Consultant shall promptly provide all requested records to the City so that the City may comply with the request within the required timeframe. The City and the Consultant shall cooperate to determine what records are subject to such a request and whether or not any exemption to the disclosure of such records or part thereof is applicable.

The Purchasing Specialist will endeavor to advise the firm of any request for the disclosure of the material so marked with "TRADE SECRET", "CONFIDENTIAL", or "PROPRIETARY", and give the firm or other submitting party the opportunity to seek a court order to protect such materials from disclosure. If the requested material was submitted by a party other than the firm, then the firm shall be solely responsible for notifying the submitting party of the request. The City's sole responsibility is to notify the firm of the request for disclosure, and the City shall not be liable for any damages resulting out of such disclosure, whether such disclosure is deemed required by law, by an order of court or administrative agency, or occurs through inadvertence, mistake, negligence on the part of the City or its officers, or employees.

B. Withdrawal of Proposal

Proposals may be withdrawn prior to the submittal deadline. Withdrawal may be attained by written request; however, no offer can be withdrawn within the ninety (90) day period which occurs after the time is set for closing. Proposers who withdraw their proposals prior to the designated date and time may still submit another proposal if done in accordance with the proper time frame.

C. Exceptions to Specifications

Exceptions to these specifications shall be listed and explained on a separate page titled "Exceptions to Specifications", which shall be prepared by the

Proposer. This page shall then be attached to these documents and submitted at the same time as the proposal. Each exception must refer to the page number and paragraph to which it is relevant. The nature and reasoning of each exception shall be explained in its entirety. Any exceptions to these specifications may be cause for rejection of the proposal.

D. Hold Harmless

Consultant shall defend, indemnify and hold harmless the City and its officers, elected and appointed officials, agents, and employees from any and all liability, losses, or damages as a result of claims, demands, suits, actions, or proceedings of any kind or nature, including but not limited to costs, and fees, including attorney's fees, judgments or settlements, resulting from or arising out of any negligent or willful act or omission on the part of the Consultant or Consultant's sub-contractors, employees, agents or sub-contractors during the performance of this Agreement. Such indemnification shall not be limited by reason of the enumeration of any insurance coverage herein provided. This provision shall survive completion, expiration, or termination of this Agreement.

Nothing contained herein shall be construed as prohibiting the City, or its officers, agents, or employees, from defending through the selection and use of their own agents, attorneys, and experts, any claims, actions or suits brought against them. The Consultant shall be liable for the costs, fees, and expenses incurred in the defense of any such claims, actions, or suits. Nothing herein shall be construed as a limitation or waiver of defenses available to the City and employees and agents, including but not limited to the Illinois Local Governmental and Governmental Employees Tort Immunity Act, 745 ILCS 10/1-101 *et seq.*

At the City Corporation Counsel's option, Consultant must defend all suits brought upon all such Losses and must pay all costs and expenses incidental to them, but the City has the right, at its option, to participate, at its own cost, in the defense of any suit, without relieving Consultant of any of its obligations under this Agreement. Any settlement of any claim or suit related to this Agreement by Consultant must be made only with the prior written consent of the City Corporation Counsel, if the settlement requires any action on the part of the City.

To the extent permissible by law, Consultant waives any limits to the amount of its obligations to indemnify, defend, or contribute to any sums due under any Losses, including any claim by any employee of Consultant that may be subject to the Illinois Workers Compensation Act, 820 ILCS 305/1 *et seq.* or any other related law or judicial decision, including but not limited to, *Kotecki v. Cyclops Welding Corporation*, 146 Ill. 2d 155 (1991). The City, however, does not waive any limitations it may have on its liability under the Illinois Workers Compensation Act, the Illinois Pension Code or any other statute.

Consultant shall be responsible for any losses and costs to repair or remedy work performed under this Agreement resulting from or arising out of any act or omission, neglect, or misconduct in the performance of its Work or its sub-

consultants' work. Acceptance of the work by the City will not relieve the Consultant of the responsibility for subsequent correction of any such error, omissions and/or negligent acts or of its liability for loss or damage resulting therefrom. All provisions of this Section shall survive completion, expiration, or termination of this Agreement.

E. Addenda

Any and all changes to these documents are valid only if they are included via written addendum to all respondents. Each respondent should acknowledge receipt of any addenda by indicating same in their proposal submission. Each respondent acknowledging receipt of any addenda is responsible for the contents of the addenda and any changes to the proposal therein. Failure to acknowledge any addenda may cause the proposal to be rejected. Addenda information is available over the internet at [City of Evanston Notices & Documents](#) or www.demandstar.com, or by contacting the Purchasing Office, 847-866-2935.

F. Term

The contract is until December 31, 2025. The City may terminate a contract for either cause or convenience.

G. Non-Appropriation of Funds

The City of Evanston reserves the right to terminate in whole or in part of the contract in the event that insufficient funds to complete the contract are appropriated by Evanston City Council.

H. Property of the City

All discoveries and documents produced as a result of any service or project undertaken on behalf of the City of Evanston shall become the property of the City.

I. Payment Terms

The consultant shall submit invoices detailing the services provided, project, professional staff, and hours. Payment shall be made in accordance with the Local Government Prompt Payment Act. Please note that failure to provide a detailed invoice could result in delay of payment and include termination of any agreement.

J. Disclosures and Potential Conflicts of Interest

The City of Evanston's Code of Ethics prohibits public officials or employees from performing or participating in an official act or action with regard to a transaction in which he has or knows he will thereafter acquire an interest for profit, without full public disclosure of such interest. This disclosure requirement extends to the spouse, children and grandchildren, and their spouses, parents and the parents of a spouse, and brothers and sisters and their spouses.

To ensure full and fair consideration of all proposals, the City of Evanston requires all Proposers including owners or employees to investigate whether a potential or actual conflict of interest exists between the Proposer and the City

of Evanston, its officials, and/or employees. If the Proposer discovers a potential or actual conflict of interest, the Proposer must disclose the conflict of interest in its proposal, identifying the name of the City of Evanston official or employee with whom the conflict may exist, the nature of the conflict of interest, and any other relevant information. The existence of a potential or actual conflict of interest does NOT, on its own, disqualify the disclosing Proposer from consideration. Information provided by Proposers in this regard will allow the City of Evanston to take appropriate measures to ensure the fairness of the proposal process.

The City requires all Proposers to submit a certification, enclosed with this RFP, that the Proposer has conducted the appropriate investigation and disclosed all potential or actual conflicts of interest.

K. Protests

Any actual or prospective Proposer, who is aggrieved in connection with the solicitation or award of a contract, may protest to the Purchasing Office. The protest shall be submitted in writing within ten (10) calendar days after such aggrieved person knows or should have known of the facts giving rise thereto.

- The Proposer shall submit any protests or claims regarding this solicitation to the Purchasing Office.
- A pre-bid protest must be filed five (5) days before the bid opening or proposal submittal.
- A pre-award protest must be filed no later than ten (10) days after the bid opening date or proposal deadline.
- A post-award protest must be filed no later than ten (10) days after the award of the Contract.

All claims by a Proposer against the City relating to a contract shall be submitted in writing to the Purchasing Specialist. The City will only consider protests that are properly and timely submitted.

All protests or claims must set forth the name and address of the protester, the contract number, the grounds for the protest or claim, and the course of action that the protesting party desires the Purchasing Specialist to take. Statements shall be sworn and submitted under penalty of perjury.

L. Authority To Resolve Protests And Contract Claims

Protests: The Purchasing Specialist shall have the authority to consider and resolve a protest of an aggrieved Proposer, actual or prospective, concerning the solicitation or award of a contract. The City shall issue a written decision and that decision is final.

Contract Claims: The Purchasing Specialist, after consulting with Corporation Counsel, shall have the authority to resolve contract claims, subject to the approval of the City Manager or City Council, as applicable, regarding any settlement that will result in a change order or contract modification.

Each Proposer, by submitting a response to this RFP, expressly recognizes the limitations on its rights to protest provided in this Section and expressly waives all other rights and remedies and agrees that the decision on the protest is final and conclusive. If a Proposer disregards, disputes or does not follow the exclusive protest remedies provided in this Section, it shall indemnify and hold the City and its officers, employees, agents and consultants harmless from and against all liabilities, fees and costs, including legal and consultant fees and costs, and damages incurred or suffered as a result of such Proposer's actions. Each Proposer, by submitting a response to this RFP, shall be deemed to have irrevocably and unconditionally agreed to this indemnity obligation.

M. Litigation

For purposes of this Section, the following terms are defined as follows:

"issue" means any prior or pending litigation or investigation, either civil or criminal, or any governmental agency action or proceeding (the "issue"), which may affect the performance of the services to be rendered herein. For purposes of this Section, an "issue" shall also include any criminal, civil, or administrative penalty or finding imposed against any covered individual. An issue occurring within seven (7) years of the date preceding the date of the Proposer's response shall be disclosed by the Proposer.

"covered individual" means any principal, president, managing partner, or vice-president, affiliated in anyway with the Firm, and the Firm's employees or sub-contractors.

All proposers shall identify and describe with particularity any issue. The City, and not Proposer, has the sole discretion to determine whether an issue may affect the performance of the services. Failure of any Proposer to comply with this mandatory obligation shall, at the City's sole discretion, result in the Proposer's response being deemed non-responsive and not responsible. Failure of any Proposer to comply with the obligation specified herein may result in the voiding any subsequent contract award to Proposer if the City discovers upon the exercise of its customary due diligence that Proposer failed to comply with the mandatory obligation in this Section. The City reserves all rights to take any other actions in the case of a Proposer's non-compliance with this Section.

N. Sub-contractors

If any firm submitting a proposal intends on sub-contracting out all or any portion of the engagement, that fact, and the name of the proposed sub-contracting firm(s) must be clearly disclosed in the proposal. Following the award of the contract, no additional sub-contracting will be allowed without the prior written consent of the City of Evanston.

O. Contact with City Personnel

All Proposers are prohibited from making any contact with the City Manager, City Council, or any other official or employee of the City with regard to the Project, other than in the manner and to the person(s) designated herein. The Purchasing Specialist reserves the right to disqualify any Proposer found to

have contacted City Personnel in any manner with regard to the Project. Additionally, if it is determined that the contact with City Personnel was in violation of any provision of 720 ILCS 5/33EE, the matter may be referred to the Cook County State's Attorney for review and prosecution.

P. Costs Incurred

The City of Evanston assumes no responsibility or liability for costs incurred by the Proposer prior to the execution of a contract. This includes costs incurred by the Proposer as a result of preparing a response to this RFP.

Exhibit A

DISCLOSURE OF OWNERSHIP INTERESTS

The City of Evanston Code Section 1-18-1 *et seq.* requires all persons (APPLICANT) seeking to do business with the City to provide the following information with their proposal. Every question must be answered. If the question is not applicable, answer with "NA".

APPLICANT NAME: _____

APPLICANT ADDRESS: _____

TELEPHONE NUMBER: _____

FAX NUMBER: _____

APPLICANT is (**Check One**)

- Corporation
- Partnership
- Sole Owner
- Association

Other () _____

Please answer the following questions on a separate attached sheet if necessary.

SECTION I - CORPORATION

1a. Names and addresses of all Officers and Directors of Corporation.

1b. **(Answer only if corporation has 33 or more shareholders.)**

Names and addresses of all those shareholders owning shares equal to or in excess of 3% of the proportionate ownership interest and the percentage of shareholder interest. (Note: Corporations which submit S.E.C. form 10K may substitute that statement for the material required herein.)

- 1c. **(Answer only if corporation has fewer than 33 shareholders.)**
Names and addresses of all shareholders and percentage of interest of each herein.
(Note: Corporations which submit S.E.C. form 10K may substitute that statement for the material requested herein.)

SECTION 2 - PARTNERSHIP/ASSOCIATION/JOINT VENTURE

- 2a. The name, address, and percentage of interest of each partner whose interests therein, whether limited or general, is equal to or in excess of 3%.

- 2b. Associations: The name and address of all officers, directors, and other members with 3% or greater interest.

SECTION 3 - TRUSTS

- 3a. Trust number and institution.

- 3b. Name and address of trustee or estate administrator.

- 3c. Trust or estate beneficiaries: Name, address, and percentage of interest in total entity.

SECTION 4 - ALL APPLICANTS - ADDITIONAL DISCLOSURE

4a. Specify which, if any, interests disclosed in Section 1, 2, or 3 are being held by an agent or nominee, and give the name and address of principal.

4b. If any interest named in Section 1,2, or 3 is being held by a "holding" corporation or other "holding" entity not an individual, state the names and addresses of all parties holding more than a 3% interest in that "holding" corporation or entity as required in 1(a), 1(b), 1(c), 2(a), and 2(b).

4c. If "constructive control" of any interest named in Sections 1,2, 3, or 4 is held by another party, give name and address of party with constructive control. ("Constructive control" refers to control established through voting trusts, proxies, or special terms of venture of partnership agreements.)

I have not withheld disclosure of any interest known to me. Information provided is accurate and current.

Date

Signature of Person Preparing Statement

Title

ATTEST: _____
Notary Public

(Notary Seal)

Commission Expires: _____

EXHIBIT B

ADDITIONAL INFORMATION SHEET

Proposal Name: _____

Proposal Number #: _____

Company Name: _____

Contact Name: _____

Address: _____

City, State, Zip: _____

Telephone/FAX: # _____

E-mail: _____

Comments: _____

Exhibit C

CONFLICT OF INTEREST FORM

_____, hereby certifies that it has conducted an investigation into whether an actual or potential conflict of interest exists between the bidder, its owners and employees and any official or employee of the City of Evanston.

Proposer further certifies that it has disclosed any such actual or potential conflict of interest and acknowledges if bidder/Proposer has not disclosed any actual or potential conflict of interest, the City of Evanston may disqualify the bid/proposal.

(Name of Bidder/Proposer if the Bidder/Proposer is an Individual)
(Name of Partner if the Bidder/Proposer is a Partnership)
(Name of Officer if the Bidder/Proposer is a Corporation)

The above statements must be subscribed and sworn to before a notary public. Subscribed and Sworn to this ____ day of _____, 20

Notary Public

Failure to complete and return this form may be considered sufficient reason for rejection of the bid / proposal.

Exhibit D

ACKNOWLEDGEMENT OF UNDERSTANDING

THE SECTION BELOW MUST BE COMPLETED IN FULL AND SIGNED

The undersigned hereby certifies that they have read and understand the contents of this solicitation and attached service agreements, and agree to furnish at the prices shown any or all of the items above, subject to all instructions, conditions, specifications and attachments hereto. Failure to have read all the provisions of this solicitation shall not be cause to alter any resulting contract or to accept any request for additional compensation. By signing this document, the Proposer hereby certifies that they are not barred from bidding on this contract as a result of bid rigging or bid rotating or any similar offense (720 ILCS S/33E-3, 33E-4).

Authorized Signature: _____	Company Name: _____
Typed/Printed Name: _____	Date: _____
Title: _____	Telephone Number: _____
Email: _____	Fax Number: _____

Exhibit E

ANTI-COLLUSION AFFIDAVIT AND PROPOSER'S CERTIFICATION

_____, being first duly sworn,
deposes and says that he is _____
(Partner, Officer, Owner, Etc.)

of _____
(Proposer)

The party making the foregoing proposal or bid, that such bid is genuine and not collusive, or sham; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference with any person; to fix the bid price element of said bid, or of that of any other bidder, or to secure any advantage against any other bidder or any person interested in the proposed contract.

The undersigned certifies that he is not barred from bidding on this contract as a result of a conviction for the violation of State laws prohibiting bid-rigging or bid-rotating.

(Name of Bidder if the Bidder is an Individual)
(Name of Partner if the Bidder is a Partnership)
(Name of Officer if the Bidder is a Corporation)

The above statements must be subscribed a sworn to before a notary public.

Subscribed and Sworn to this _____ day of _____, 20

Notary Public

Commission Expires: _____

Failure to complete and return this form may be considered sufficient reason for rejection of the bid.

EXHIBIT F

CITY OF EVANSTON M/W/D/EBE POLICY

A City of Evanston goal is to provide contracting and sub-contracting opportunities to Minority Business Enterprises, Women Business Enterprises, Disadvantaged and Evanston Business Enterprises. The goal of the Minority, Women, Disadvantaged and Evanston Business Enterprise Program (M/W/D/EBE) is to assist such businesses with opportunities to grow. To assist such growth, the City's goal is to have general contractors utilize M/W/D/EBEs to perform no less than 25% of the awarded contract.

Firms bidding on projects with the City must work to meet the 25% goal or request a waiver from participation. It is advised that bidders place advertisements requesting sub-contractors and that they email or contact individual firms that would be appropriate to partner in response to the project. For samples of possible advertisements, see the City of Evanston's Business Diversity Section <http://www.cityofevanston.org/business/business-diversity/> ([Sample Advertisement](#)). If you request a paper copy of the additional documents, it will be available free of charge from the Purchasing Office, 2100 Ridge Road Suite 4200, Evanston, IL 60201.

If a bidder is unable to meet the required M/W/D/EBE goal, the Bidder must seek a waiver or modification of the goal on the attached forms. Bidder must include:

1. A narrative describing the Bidder's efforts to secure M/W/D/EBE participation prior to the bid opening.
2. Documentation of each of the assist agencies that were contacted, the date and individual who was contacted, and the result of the conversation (see form)
3. A letter attesting to instances where the bidder has not received inquiries/proposals from qualified M/W/D/EBEs
4. Names of owners, addresses, telephone numbers, date and time and method of contact of qualified M/W/D/EBE who submitted a proposal but was not found acceptable.
5. Names of owners, addresses, telephone numbers, date and time of contact of at least 15 qualified M/W/D/EBEs the bidder solicited for proposals for work directly related to the Bid prior to the bid opening (copies must be attached).

If a bidder is selected with a Sub-contractor listed to meet the M/W/D/EBE goal, a "monthly utilization report" will be due to the City prior to each payment being issued to the Contractor. This report will include documentation of the name of the firm hired, the type of work that firm performed, etc. Should the M/W/D/EBE not be paid according to the schedule proposed in this document, the City reserves the right to cancel the contract. Examples of this monthly form can be found on the City's website: <http://www.cityofevanston.org/business/business-diversity/> ([MWDEBE Monthly Utilization Report](#)).

EXHIBIT G

M/W/D/EBE PARTICIPATION COMPLIANCE FORM

I do hereby certify that

_____ (Name of firm) intends to participate as a Subcontractor or General Contractor on the project referenced above.

This firm is a (check only one):

_____ Minority Business Enterprise (MBE), a firm that is at least 51% managed and controlled by a minority, certified by a certifying agency within Illinois.

_____ Women's Business Enterprise (WBE), a firm that is at least 51% managed and controlled by a woman, certified by a certifying agency within Illinois.

_____ Disadvantaged Business Enterprise (DBE), a firm that is at least 51% managed and controlled by a disadvantaged, certified by a certifying agency within Illinois.

_____ Evanston Based Enterprise (EBE), a firm located in Evanston for a minimum of one year and which performs a "commercially useful function".

Total proposed price of response \$ _____

Amount to be performed by a M/W/D/EBE \$ _____

Percentage of work to be performed by a M/W/D/EBE _____ %

Information on the M/W/D/EBE Utilized:

Name _____

Address _____

Phone Number _____

Signature of firm attesting to participation _____

Title and Date _____

Type of work to be performed _____

Please attach:

1. Proper certification documentation if applying as a M/W/DBE and check the appropriate box below. This M/W/DBE will be applying with documentation from:

- | | |
|------------------------------------------------|------------------------------------------------------------------------|
| <input type="checkbox"/> Cook County | <input type="checkbox"/> State Certification |
| <input type="checkbox"/> Federal Certification | <input type="checkbox"/> Women's Business Enterprise National Council |
| <input type="checkbox"/> City of Chicago | <input type="checkbox"/> Chicago Minority Supplier Development Council |

2. Attach business license if applying as an EBE

Exhibit I

M/W/D/EBE PARTICIPATION WAIVER REQUEST

I am _____ of _____, and I have authority to
(Title) (Name of Firm)

execute this certification on behalf of the firm. I _____ do
(Name)

hereby certify that this firm seeks to waive all or part of this M/W/D/EBE participation goal for the following reason(s):

(CHECK ALL THAT APPLY. SPECIFIC SUPPORTING DOCUMENTATION MUST BE ATTACHED.)

_____ 1. No M/W/D/EBEs responded to our invitation to bid.

_____ 2. An insufficient number of firms responded to our invitation to bid.

For #1 & 2, please provide a narrative describing the outreach efforts from your firm and proof of contacting at least 15 qualified M/W/D/EBEs prior to the bid opening. Also, please attach the accompanying form with notes regarding contacting the Assist Agencies.

_____ 3. No sub-contracting opportunities exist.

Please provide a written explanation of why sub-contracting is not feasible.

_____ 4. M/W/D/EBE participation is impracticable.

Please provide a written explanation of why M/W/D/EBE participation is impracticable.

Therefore, we request to waive _____ of the 25% utilization goal for a revised goal of _____%.

Signature: _____
(Signature)

Date: _____

EXHIBIT J

M/W/D/EBE Assistance Organizations (“Assist Agencies”) Form

AGENCY	DATE CONTACTED	CONTACT PERSON	RESULT OF CONVERSATION
Association of Asian Construction Enterprises (AACE) 5500 Touhy Ave., Unit K Skokie, IL. 60077 Phone: 847-525-9693 Perry Nakachii, President			
Black Contractors United (BCU) 400 W. 76th Street Chicago, IL 60620 Phone: 773-483-4000; Fax: 773-483-4150 Email: bcunewera@ameritech.net			
Chicago Minority Business Development Council 105 West Adams Street Chicago, Illinois 60603 Phone: 312-755-8880; Fax: 312-755-8890 Email: info@chicagomsdc.org Shelia Hill, President			
Evanston Minority Business Consortium, Inc. P.O. Box 5683 Evanston, Illinois 60204 Phone: 847-492-0177 Email: embcinc@aol.com			
Federation of Women Contractors 5650 S. Archer Avenue Chicago, Illinois 60638 Phone: 312-360-1122; Fax: 312-360-0239 Email: FWCChicago@aol.com Contact Person: Beth Doria Maureen Jung, President			
Hispanic American Construction Industry (HACIA) 901 W. Jackson, Suite 205 Chicago, IL 60607 Phone: 312-666-5910; Fax: 312-666-5692 Email: info@haciaworks.org			
Women’s Business Development Ctr. 8 S. Michigan Ave, Suite 400 Chicago, Illinois 60603 Phone: 312-853-3477 X220; Fax: 312-853-0145 Email: wbdc@wbdc.org Carol Dougal, Director			

PLEASE NOTE: Use of M/W/D/EBE Assistance Organizations (“Assist Agencies”) Form and agencies are for use as a resource only. The agencies and or vendors listed are not referrals or recommendations by the City of Evanston.

Exhibit K
PROPOSAL COST TABLE

Task	Consultant / Subconsultant	Cost
Investigation		\$
Structural Condition Appraisal		\$
Detailed Inspection Allowance		\$ 37,011
Non-Destructive Testing & Material Testing Allowance		\$ 9,253
Structural Condition Report & Summary Presentation		\$
Subtotal		\$
Reimbursable Expenses (Not to Exceed)		\$
Grand Total		\$

Exhibit L
FIRM EXPERIENCE TABLE

Firm Experience Within Past 10 Years			
List 3 most current and similar projects, including Project Name, Client Organization, Reference Name, Title, Phone Number, and Email Address			
Work Type	Client 1	Client 2	Client 3
Concrete Parking Structure Assessment			

Note 1: Proposers may re-create this table to better accommodate their information, so long as all required information is provided and table follows the general format shown above.

Note 2: Provide firm experience references for the prime consultant and sub-consultants.

Exhibit M
PROJECT TEAM EXPERIENCE TABLE

Team Experience Within Past 10 Years				
List most current similar projects, including Project Name, Client Organization, Reference Name, Title, Phone Number, and Email Address				
Client / Location (Year) ¹	Project Type	Project Manager ²	Key Team Member #1 ²	Reference Contact Information ³

¹ Include, at a minimum, the last three similar projects for each team member.

² Indicate actual team member names. Provide a column for each key team member on this proposal.

³ Provide name, title, email address and phone number for each reference.

Exhibit N

Professional Services Agreement Acknowledgement Page

The City has attached its standard professional services agreement as an exhibit to this RFP. Identify all exceptions to the agreement that would prevent your firm from executing it. **The City shall not consider or negotiate regarding exceptions submitted at any time after the submission of the Proposer's response.** *Please check one of the following statements:*

____ I have read the professional services agreement and plan on executing the agreement without any exceptions.

_____ My firm cannot execute the City's standard professional service agreement unless the exceptions noted below or in the attached sample professional services agreement are made.

*****Please be aware that submitting exceptions to the contract may impact the likelihood of your firm being selected to perform this work.**

List exceptions in the area below:

Authorized Signature: _____ **Company Name:** _____

Typed/Printed Name and Title: _____ **Date:** _____

Exhibit O

Consultant Certification and Verification

I certify in accordance with the Professional Services Agreement, the agents, employees and subcontractors of [CONSULTANT FIRM] are in compliance and will comply with City work rules and policies applicable to City employees while they are on City property, including the City's Workplace Harassment Policy; COVID-19 Vaccination Policy; and Sexual Harassment Policy. I further certify that the agents, employees and subcontractors of [CONSULTANT FIRM] are in compliance with OSHA emergency temporary standard to protect workers from coronavirus.

CONSULTANT:

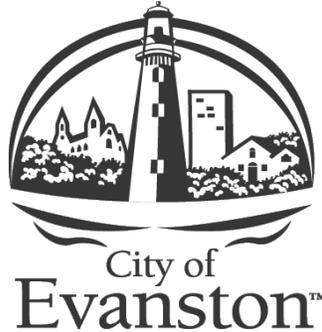
By _____

Its: _____

FEIN Number: _____

Date: _____

Exhibit P



CITY OF EVANSTON **PROFESSIONAL SERVICES AGREEMENT**

The parties referenced herein desire to enter into an agreement for professional services for

Sherman Plaza Parking Garage Structural Assessment

("the Project")

RFP Number: 25-29

THIS AGREEMENT (hereinafter referred to as the "Agreement") entered into this ___ day of _____, 20___, between the City of Evanston, an Illinois municipal corporation with offices located at 2100 Ridge Avenue, Evanston Illinois 60201 (hereinafter referred to as the "City"), and *[Insert Professional Service Provider's name here]*, with offices located at *[Insert address here]*, (hereinafter referred to as the "Consultant"). Compensation for all basic Services ("the Services") provided by the Consultant pursuant to the terms of this Agreement shall not exceed *[\$[Insert fee here]]*.

I. COMMENCEMENT DATE

Consultant shall commence the Services on _____ or no later than *three (3) DAYS AFTER* City executes and delivers this Agreement to Consultant.

II. COMPLETION DATE

Consultant shall complete the Services by _____. If this Agreement provides for renewals after an initial term, no renewal shall begin until agreed to in writing by both parties prior to the completion date of this Agreement.

III. PAYMENTS

City shall pay Consultant those fees as provided here: Payment shall be made upon the completion of each task for a project, as set forth in Exhibit A –

Project Milestones and Deliverables. Any expenses in addition to those set forth here must be specifically approved by the City in writing in advance.

IV. DESCRIPTION OF SERVICES

Consultant shall perform the services (the "Services") set forth here: Services are those as defined in Exhibit A, the City's Request for **Proposal/Qualifications No. # (Exhibit B) and Consultant's Response to the Proposal (Exhibit C)**. Services may include, if any, other documented discussions and agreements regarding scope of work and cost (Exhibit D).

V. GENERAL PROVISIONS

A. Services. Consultant shall perform the Services in a professional and workmanlike manner. All Services performed and documentation (regardless of format) provided by Consultant shall be in accordance with the standards of reasonable care and skill of the profession, free from errors or omissions, ambiguities, coordination problems, and other defects. Consultant shall take into account any and all applicable plans and/or specifications furnished by City, or by others at City's direction or request, to Consultant during the term of this Agreement. All materials, buildings, structures, or equipment designed or selected by Consultant shall be workable and fit for the intended use thereof, and will comply with all applicable governmental requirements. Consultant shall require its employees to observe the working hours, rules, security regulations and holiday schedules of City while working and to perform its Services in a manner which does not unreasonably interfere with the City's business and operations, or the business and operations of other tenants and occupants in the City which may be affected by the work relative to this Agreement. Consultant shall take all necessary precautions to assure the safety of its employees who are engaged in the performance of the Services, all equipment and supplies used in connection therewith, and all property of City or other parties that may be affected in connection therewith. If requested by City, Consultant shall promptly replace any employee or agent performing the Services if, in the opinion of the City, the performance of the employee or agent is unsatisfactory.

Consultant is responsible for conforming its final work product to generally accepted professional standards for all work performed pursuant to this Agreement. Nothing in this Agreement accords any third-party beneficiary rights whatsoever to any non-party to this Agreement that any non-party may seek to enforce. Consultant acknowledges and agrees that should Consultant or its sub-consultants provide false information, or fail to be or remain in compliance with this Agreement; the City may void this Agreement. The Consultant warrants and states that it has read the Contract Documents, and agrees to be bound thereby, including all performance guarantees as respects Consultant's work and all indemnity and insurance requirements.

The Consultant shall obtain prior approval from the City prior to sub-contracting with any entity or person to perform any of the work required under this Agreement. If the Consultant sub-contracts any of the services to be performed under this Agreement, the sub-consultant agreement shall provide that the services to be performed under any such agreement shall not be sublet, sold, transferred, assigned or otherwise disposed of to another entity or person without the City's prior written consent. The Consultant shall be responsible for the accuracy and quality of any sub-consultant's work.

All sub-consultant agreements shall include verbatim or by reference the provisions in this Agreement binding upon Consultant as to all Services provided by this Agreement, such that it is binding upon each and every sub-consultant that does work or provides Services under this Agreement.

The Consultant shall cooperate fully with the City, other City contractors, other municipalities and local government officials, public utility companies, and others, as may be directed by the City. This shall include attendance at meetings, discussions and hearings as requested by the City. This cooperation shall extend to any investigation, hearings or meetings convened or instituted by the City, any of its departments, and/or OSHA relative to this Project, as necessary. Consultant shall cooperate with the City in scheduling and performing its Work to avoid conflict, delay in or interference with the work of others, if any, at the Project.

Except as otherwise provided herein, the nature and scope of Services specified in this Agreement may only be modified by a writing approved by both parties. This Agreement may be modified or amended from time to time provided, however, that no such amendment or modification shall be effective unless reduced to writing and duly authorized and signed by the authorized representatives of the parties.

- B. Representation and Warranties.** Consultant represents and warrants that: (1) Consultant possesses and will keep in force all required licenses to perform the Services; (2) the employees of Consultant performing the Services are fully qualified, licensed as required, and skilled to perform the Services.
- C. Breach/Default.** Any one of the following events shall be deemed an event of default hereunder by Consultant, subject to Consultant's right to cure:
1. Failure to perform the Services as defined in Paragraph A above and contained within Exhibit A;
 2. Failure to comply with any other of the General Provisions contained within this contract.

Consultant, within thirty (30) days, shall have the right to cure any default herein listed at its own expense, including completion of Services or the replacement or termination of any agent, employee, or sub-contractor as a

result of any violation of the General Provisions contained herein.

- D. Remedy.** City does not waive any right to exercise any option to cure any breach or default on the part of contractor, including but not limited to injunctive relief, an action in law or equity or termination of this Agreement as outlined in Paragraph E of this section.
- E. Termination.** City may, at any time, with or without cause, terminate this Agreement upon seven (7) days written notice to Consultant. If the City terminates this agreement, the City will make payment to Consultant for Services performed prior to termination. Payments made by the City pursuant to this Agreement are subject to sufficient appropriations made by the City of Evanston City Council. In the event of termination resulting from non-appropriation or insufficient appropriation by the City Council, the City's obligations hereunder shall cease and there shall be no penalty or further payment required. In the event of an emergency or threat to the life, safety or welfare of the citizens of the City, the City shall have the right terminate this Agreement without prior written notice. Within thirty (30) days of termination of this Agreement, the Consultant shall turn over to the City any documents, drafts, and materials, including but not limited to, outstanding work product, data, studies, test results, source documents, AutoCAD Version 2025, PDF, ArcView, Word, Excel spreadsheets, technical specifications and calculations, and any other such items specifically identified by the City related to the Services herein.
- F. Independent Consultant.** Consultant's status shall be that of an independent Consultant and not that of a servant, agent, or employee of City. Consultant shall not hold Consultant out, nor claim to be acting, as a servant, agent or employee of City. Consultant is not authorized to, and shall not, make or undertake any agreement, understanding, waiver or representation on behalf of City. Consultant shall at its own expense comply with all applicable workers compensation, unemployment insurance, employer's liability, tax withholding, minimum wage and hour, and other federal, state, county and municipal laws, ordinances, rules, regulations and orders. Consultant shall require its employees to observe the working hours, rules, security regulations and holiday schedules of City, including but not limited to all policies and work rules applicable to City employees while on City property such as the Workplace Harassment Policy; COVID-19 Vaccination Policy; and Drug and Alcohol Policy. Consultant agrees to abide by the Occupational Safety & Health Act of 1970 (OSHA), and as the same may be amended from time to time, applicable state and municipal safety and health laws and all regulations pursuant thereto. Consultant shall certify that its agents, employees and subcontractors are in compliance with City work rules applicable to City employees while on City property. Failure to certify or violation of work rules is subject to the Default provisions of Paragraph C.
- G. Conflict of Interest.** Consultant represents and warrants that no prior or present services provided by Consultant to third parties conflict with the

interests of City in respect to the Services being provided hereunder except as shall have been expressly disclosed in writing by Consultant to City and consented to in writing to City.

- H. Ownership of Documents and Other Materials.** All originals, duplicates and negatives of all plans, drawings, reports, photographs, charts, programs, models, specimens, specifications, AutoCAD Version 2025, Excel spreadsheets, PDF, and other documents or materials required to be furnished by Consultant hereunder, including drafts and reproduction copies thereof, shall be and remain the exclusive property of City, and City shall have the unlimited right to publish and use all or any part of the same without payment of any additional royalty, charge, or other compensation to Consultant. Upon the termination of this Agreement, or upon request of City, during any stage of the Services, Consultant shall promptly deliver all such materials to City. Consultant shall not publish, transfer, license or, except in connection with carrying out obligations under this Agreement, use or reuse all or any part of such reports and other documents, including working pages, without the prior written approval of City, provided, however, that Consultant may retain copies of the same for Consultant's own general reference.
- I. Payment.** Invoices for payment shall be submitted by Consultant to City at the address set forth above, together with reasonable supporting documentation, City may require such additional supporting documentation as City reasonably deems necessary or desirable. Payment shall be made in accordance with the Illinois Local Government Prompt Payment Act, after City's receipt of an invoice and all such supporting documentation.
- J. Right to Audit.** Consultant shall for a period of three years following performance of the Services, keep and make available for the inspection, examination and audit by City or City's authorized employees, agents or representatives, at all reasonable time, all records respecting the services and expenses incurred by Consultant, including without limitation, all book, accounts, memoranda, receipts, ledgers, canceled checks, and any other documents indicating, documenting, verifying or substantiating the cost and appropriateness of any and all expenses. If any invoice submitted by Consultant is found to have been overstated, Consultant shall provide City an immediate refund of the overpayment together with interest at the highest rate permitted by applicable law, and shall reimburse all of City's expenses for and in connection with the audit respecting such invoice.
- K. Indemnity.** Consultant shall defend, indemnify and hold harmless the City and its officers, elected and appointed officials, agents, and employees from any and all liability, losses, or damages as a result of claims, demands, suits, actions, or proceedings of any kind or nature, including but not limited to costs, and fees, including attorney's fees, judgments or settlements, resulting from or arising out of any negligent or willful act or omission on the part of the Consultant or Consultant's sub-contractors, employees, agents or sub-contractors during the performance of this Agreement. Such indemnification shall not be limited by reason of the enumeration of any insurance coverage

herein provided. This provision shall survive completion, expiration, or termination of this Agreement.

Nothing contained herein shall be construed as prohibiting the City, or its officers, agents, or employees, from defending through the selection and use of their own agents, attorneys, and experts, any claims, actions or suits brought against them. The Consultant shall be liable for the costs, fees, and expenses incurred in the defense of any such claims, actions, or suits. Nothing herein shall be construed as a limitation or waiver of defenses available to the City and employees and agents, including but not limited to the Illinois Local Governmental and Governmental Employees Tort Immunity Act, 745 ILCS 10/1-101 *et seq.*

At the City Corporation Counsel's option, Consultant must defend all suits brought upon all such Losses and must pay all costs and expenses incidental to them, but the City has the right, at its option, to participate, at its own cost, in the defense of any suit, without relieving Consultant of any of its obligations under this Agreement. Any settlement of any claim or suit related to this Agreement by Consultant must be made only with the prior written consent of the City Corporation Counsel, if the settlement requires any action on the part of the City.

To the extent permissible by law, Consultant waives any limits to the amount of its obligations to indemnify, defend, or contribute to any sums due under any Losses, including any claim by any employee of Consultant that may be subject to the Illinois Workers Compensation Act, 820 ILCS 305/1 *et seq.* or any other related law or judicial decision, including but not limited to, *Kotecki v. Cyclops Welding Corporation*, 146 Ill. 2d 155 (1991). The City, however, does not waive any limitations it may have on its liability under the Illinois Workers Compensation Act, the Illinois Pension Code or any other statute.

Consultant shall be responsible for any losses and costs to repair or remedy work performed under this Agreement resulting from or arising out of any act or omission, neglect, or misconduct in the performance of its Work or its sub-consultants' work. Acceptance of the work by the City will not relieve the Consultant of the responsibility for subsequent correction of any such error, omissions and/or negligent acts or of its liability for loss or damage resulting therefrom. All provisions of this Section shall survive completion, expiration, or termination of this Agreement.

- L. Insurance.** Consultant shall carry and maintain at its own cost with such companies as are reasonably acceptable to City all necessary liability insurance (which shall include as a minimum the requirements set forth below) during the term of this Agreement, for damages caused or contributed to by Consultant, and insuring Consultant against claims which may arise out of or result from Consultant's performance or failure to perform the Services hereunder: (1) worker's compensation in statutory limits and employer's liability insurance in the amount of at least \$500,000, (2) comprehensive general liability coverage, and designating City as additional insured for not

less than \$3,000,000 combined single limit for bodily injury, death and property damage, per occurrence, (3) comprehensive automobile liability insurance covering owned, non-owned and leased vehicles for not less than \$1,000,000 combined single limit for bodily injury, death or property damage, per occurrence, and (4) errors and omissions or professional liability insurance respecting any insurable professional services hereunder in the amount of at least \$1,000,000. Consultant shall give to the City certificates of insurance for all Services done pursuant to this Agreement before Consultant performs any Services, and, if requested by City, certified copies of the policies of insurance evidencing the coverage and amounts set forth in this Section. The City may also require Consultant to provide copies of the Additional Insured Endorsement to said policy (ies) which name the City as an Additional Insured for all of Consultant's Services and work under this Agreement. Any limitations or modification on the certificate of insurance issued to the City in compliance with this Section that conflict with the provisions of this Section shall have no force and effect. Consultant's certificate of insurance shall contain a provision that the coverage afforded under the policy(s) will not be canceled or reduced without thirty (30) days prior written notice (hand delivered or registered mail) to City. Consultant understands that the acceptance of certificates, policies and any other documents by the City in no way releases the Consultant and its sub-contractors from the requirements set forth herein. Consultant expressly agrees to waive its rights, benefits and entitlements under the "Other Insurance" clause of its commercial general liability insurance policy as respects the City. In the event Consultant fails to purchase or procure insurance as required above, the parties expressly agree that Consultant shall be in default under this Agreement, and that the City may recover all losses, attorney's fees and costs expended in pursuing a remedy or reimbursement, at law or in equity, against Consultant.

Consultant acknowledges and agrees that if it fails to comply with all requirements of this Section, that the City may void this Agreement.

- M. Confidentiality.** In connection with this Agreement, City may provide Consultant with information to enable Consultant to render the Services hereunder, or Consultant may develop confidential information for City. Consultant agrees (i) to treat, and to obligate Consultant's employees to treat, as secret and confidential all such information whether or not identified by City as confidential, (ii) not to disclose any such information or make available any reports, recommendations and /or conclusions which Consultant may make for City to any person, firm or corporation or use the same in any manner whatsoever without first obtaining City's written approval, and (iii) not to disclose to City any information obtained by Consultant on a confidential basis from any third party unless Consultant shall have first received written permission from such third party to disclose such information.

Pursuant to the Illinois Freedom of Information Act, 5 ILCS 140/7(2), records in the possession of others whom the City has contracted with to perform a governmental function are covered by the Act and subject to disclosure within limited statutory timeframes (five (5) working days with a possible five (5)

working day extension). Upon notification from the City that it has received a Freedom of Information Act request that calls for records within the Consultant's control, the Consultant shall promptly provide all requested records to the City so that the City may comply with the request within the required timeframe. The City and the Consultant shall cooperate to determine what records are subject to such a request and whether or not any exemption to the disclosure of such records or part thereof is applicable. Vendor shall indemnify and defend the City from and against all claims arising from the City's exceptions to disclosing certain records which Vendor may designate as proprietary or confidential. Compliance by the City with an opinion or a directive from the Illinois Public Access Counselor or the Attorney General under FOIA, or with a decision or order of Court with jurisdiction over the City, shall not be a violation of this Section.

- N. Use of City's Name or Picture of Property.** Consultant shall not in the course of performance of this Agreement or thereafter use or permit the use of City's name nor the name of any affiliate of City, nor any picture of or reference to its Services in any advertising, promotional or other materials prepared by or on behalf of Consultant, nor disclose or transmit the same to any other party.
- O. No Assignments or Sub-contracts.** Consultant shall not assign or sub-contract all or any part or its rights or obligations hereunder without City's express prior written approval. Any attempt to do so without the City's prior consent shall, at City's option, be null and void and of no force or effect whatsoever. Consultant shall not employ, contract with, or use the services of any other architect, interior designer, engineer, consultant, special contractor, or other third party in connection with the performance of the Services without the prior written consent of City.
- P. Compliance with Applicable Statutes, Ordinances and Regulations.** In performing the Services, Consultant shall comply with all applicable federal, state, county, and municipal statutes, ordinances and regulations, at Consultant's sole cost and expense, except to the extent expressly provided to the contrary herein. Whenever the City deems it reasonably necessary for security reasons, the City may conduct at its own expense, criminal and driver history background checks of Consultant's officers, employees, sub-contractors, or agents. Consultant shall immediately reassign any such individual who in the opinion of the City does not pass the background check.
- Q. Liens and Encumbrances.** Consultant, for itself, and on behalf of all sub-contractors, suppliers, materialmen and others claiming by, through or under Consultant, hereby waives and releases any and all statutory or common law mechanics' materialmen's' or other such lien claims, or rights to place a lien upon City property or any improvements thereon in connection with any Services performed under or in connection with this Agreement. Consultant further agrees, as and to the extent of payment made hereunder, to execute a sworn affidavit respecting the payment and lien releases of all sub-contractors, suppliers and materialmen, and a release of lien respecting the Services at

such time or times and in such form as may be reasonably requested by City. Consultant shall protect City from all liens for labor performed, material supplied or used by Consultant and/or any other person in connection with the Services undertaken by consultant hereunder, and shall not at any time suffer or permit any lien or attachment or encumbrance to be imposed by any sub-consultant, supplier or materialmen, or other person, firm or corporation, upon City property or any improvements thereon, by reason or any claim or demand against Consultant or otherwise in connection with the Services.

- R. Notices.** Every notice or other communication to be given by either party to the other with respect to this Agreement, shall be in writing and shall not be effective for any purpose unless the same shall be served personally or by United States certified or registered mail, postage prepaid, addressed if to City as follows: City of Evanston, 2100 Ridge Avenue, Evanston, Illinois 60201, Attention: Purchasing Division and to Consultant at the address first above set forth, or at such other address or addresses as City or Consultant may from time to time designate by notice given as above provided.
- S. Attorney's Fees.** In the event that the City commences any action, suit, or other proceeding to remedy, prevent, or obtain relief from a breach of this Agreement by Consultant, or arising out of a breach of this Agreement by Consultant, the City shall recover from the Consultant as part of the judgment against Consultant, its attorneys' fees and costs incurred in each and every such action, suit, or other proceeding.
- T. Waiver.** Any failure or delay by City to enforce the provisions of this Agreement shall in no way constitute a waiver by City of any contractual right hereunder, unless such waiver is in writing and signed by City.
- U. Severability.** In the event that any provision of this Agreement should be held void, or unenforceable, the remaining portions hereof shall remain in full force and effect.
- V. Choice of Law.** The rights and duties arising under this Agreement shall be governed by the laws of the State of Illinois. Venue for any action arising out or due to this Agreement shall be in Cook County, Illinois. The City shall not enter into binding arbitration to resolve any dispute under this Agreement. The City does not waive tort immunity by entering into this Agreement.
- W. Time.** Consultant agrees all time limits provided in this Agreement and any Addenda or Exhibits hereto are of essence to this Agreement. Consultant shall continue to perform its obligations while any dispute concerning the Agreement is being resolved, unless otherwise directed by the City.
- X. Survival.** Except as expressly provided to the contrary herein, all provisions of this Agreement shall survive all performances hereunder including the termination of the Consultant.

VI. EQUAL EMPLOYMENT OPPORTUNITY

In the event of the Consultant's noncompliance with any provision of Section 1-12-5 of the Evanston City Code, the Illinois Human Rights Act or any other applicable law, the Consultant may be declared non-responsible and therefore ineligible for future contracts or sub-contracts with the City, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

During the performance of the contract, the Consultant agrees as follows:

A. That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, national origin or ancestry, or age or physical or mental disabilities that do not impair ability to work, and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization. Consultant shall comply with all requirements of City of Evanston Code Section 1-12-5.

B. That, in all solicitations or advertisements for employees placed by it on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, national origin, ancestry, or disability.

VII. SEXUAL HARASSMENT POLICY

The Consultant certifies pursuant to the Illinois Human Rights Act (775 ILCS 5/2105 *et. seq.*), that it has a written sexual harassment policy that includes, at a minimum, the following information:

- A.** The illegality of sexual harassment;
- B.** The definition of sexual harassment under State law;
- C.** A description of sexual harassment utilizing examples;
- D.** The Consultant's internal complaint process including penalties;
- E.** Legal recourse, investigation and complaint process available through the Illinois Department of Human Rights and the Human Rights Commission, and directions on how to contact both; and
- F.** Protection against retaliation as provided to the Department of Human Rights.

VIII. CONSULTANT CERTIFICATIONS

A. Consultant acknowledges and agrees that should Consultant or its sub-consultant provide false information, or fails to be or remain in compliance with the Agreement, the City may void this Agreement.

B. Consultant certifies that it and its employees will comply with applicable provisions of the U.S. Civil Rights Act, Section 504 of the Federal Rehabilitation Act, the Americans with Disabilities Act (42 U.S.C. Section 1201 et seq.) and applicable rules in performance under this Agreement.

C. If Consultant, or any officer, director, partner, or other managerial agent of Consultant, has been convicted of a felony under the Sarbanes-Oxley Act of 2002, or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953, Consultant certifies at least five years have passed since the date of the conviction.

D. Consultant certifies that it has not been convicted of the offense of bid rigging or bid rotating or any similar offense of any State in the U.S., nor made any admission of guilt of such conduct that is a matter of record. (720 ILCS 5/33 E-3, E-4).

E. In accordance with the Steel Products Procurement Act, Consultant certifies steel products used or supplied in the performance of a contract for public works shall be manufactured or produced in the U.S. unless the City grants an exemption.

F. Consultant certifies that it is properly formed and existing legal entity, and as applicable, has obtained an assumed name certificate from the appropriate authority, or has registered to conduct business in Illinois and is in good standing with the Illinois Secretary of State.

G. If more favorable terms are granted by Consultant to any similar governmental entity in any state in a contemporaneous agreement let under the same or similar financial terms and circumstances for comparable supplies or services, the more favorable terms shall be applicable under this Agreement.

H. Consultant certifies that it is not delinquent in the payment of any fees, fines, damages, or debts to the City of Evanston.

IX. INTEGRATION

This Agreement, together with Exhibits A, B, C, and D sets forth all the covenants, conditions and promises between the parties with regard to the subject matter set forth herein. There are no covenants, promises, agreements, conditions or understandings between the parties, either oral or written, other than those contained in this Agreement. This Agreement has been negotiated and entered into by each party with the opportunity to consult with its counsel regarding the terms therein. No portion of the Agreement shall be construed against a party due to the fact that one party drafted that particular portion as the rule of *contra proferentem* shall not apply.

In the event of any inconsistency between this Agreement, and any Exhibits, this Agreement shall control over the Exhibits. In no event shall any proposal or contract form submitted by Consultant be part of this Agreement unless agreed to in a writing signed by both parties and attached and referred to herein as an Addendum, and in such event, only the portions of such proposal or contract form consistent with this Agreement and Exhibits hereto shall be part hereof.

IN WITNESS WHEREOF, the parties hereto have each approved and executed this Agreement on the day, month and year first above written.

CONSULTANT:

**CITY OF EVANSTON
909 DAVIS STREET
EVANSTON, IL 60201**

By: _____

By: _____

Luke Stowe

Its: _____

Its: City Manager

FEIN Number: _____

Date: _____

Date: _____

Approved as to form:

By: _____

Alexandra Ruggie

Its: Corporation Counsel

Revision: April 2021

EXHIBIT A – Project Milestones and Deliverables

This EXHIBIT A to that certain Consulting Agreement dated _____ between the City of Evanston, 909 Davis Street, Evanston, Illinois, 60201(“City”) and _____ (“Consultant”) sets forth the Commencement and Completion Date, Services, Fees, and Reimbursable Expenses as follows:

I. COMMENCEMENT DATE: _____

II. COMPLETION DATE: _____

III. FEES:

IV. SERVICES/SCOPE OF WORK:

As defined in RFP/Q # _____ (Exhibit B) and Consultants Response to Proposal (Exhibit C)

Dated: _____

Parking Garage Structural Assessment

City of Evanston RFP 20-19

Evanston, Illinois



FINAL REPORT

July 16, 2021

WJE No. 2020.1793

PREPARED FOR:

City of Evanston
Purchasing Division, Room 4200
Lorraine H. Morton Civic Center
2100 Ridge Avenue
Evanston, Illinois 60201

PREPARED BY:

Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel



Parking Garage Structural Assessment

City of Evanston RFP 20-19

Evanston, Illinois

Timothy A. Gregor
Associate III

Kenneth P. Marley
Senior Associate

James P. Donnelly, PE, SE
Principal and Project Manager

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APPENDIX A. Water Soluble Chloride Analysis

1. CHAPTER 1 - GENERAL

1.1. Introduction

At the request of the City of Evanston, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a condition assessment of the following five City-owned parking structures: Church Street Parking Garage, Maple Avenue Parking Garage, Service Center Building D Garage, Sherman Plaza Parking Garage, and the Chicago Avenue Parking Garage. The location of each garage is shown in Figure 1.1 below. The purpose of this investigation was to establish the overall condition of these garage structures and to develop repair and maintenance recommendations based upon the findings. This report summarizes the significant observations and findings from the condition assessments and provides recommendations for the maintenance and repair of these parking structures for prolonged service life.

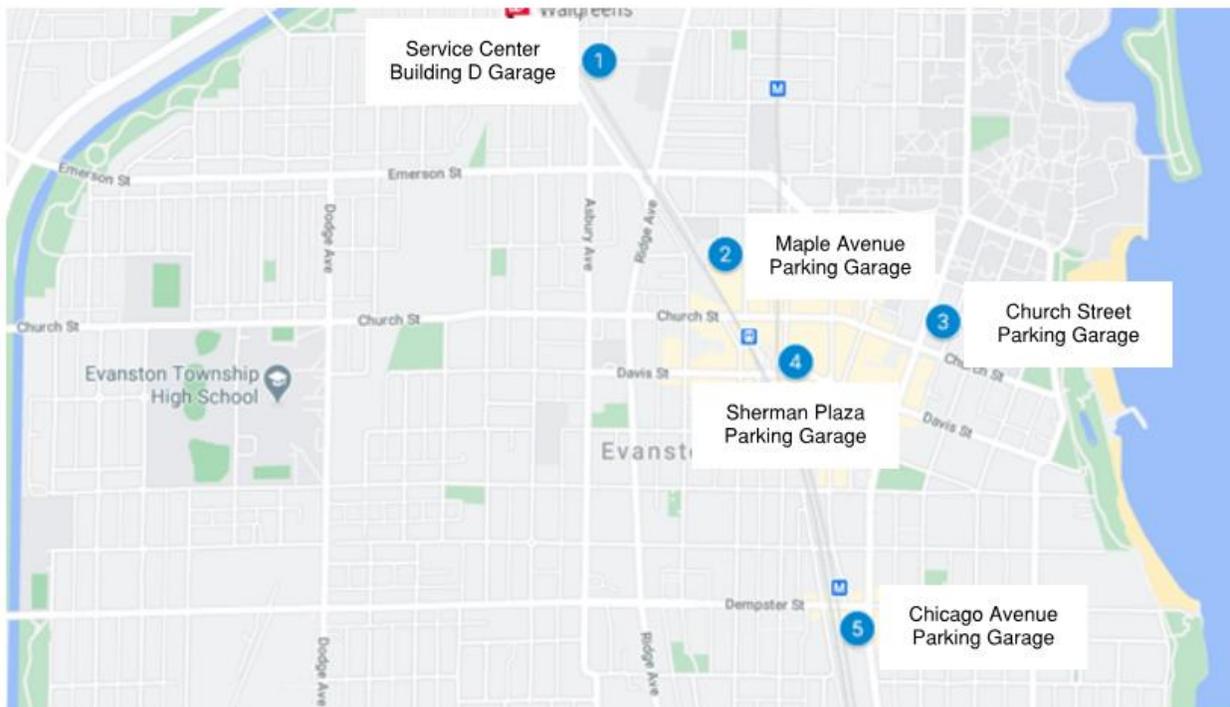


Figure 1.1. City-owned parking structures in this study

1.2. Summary of Project

The condition assessment of these five, City-owned parking structures consisted of a review of the structural components of the City-owned portions of each structure to determine if any deterioration or distress was present. If distress or deterioration was observed, the cause was investigated to determine possible remediation steps. This investigation was used to develop prioritized listing of repairs specific to each structure, as well as the estimated probable cost for the repairs.

A brief description of the five parking structures included in the condition assessment is as follows:

-
- **Chicago Avenue Parking Garage** - This garage occupies the ground floor of a seven-story multi-family residential building, is constructed of precast concrete floor planks supported on steel beams and columns, and is located at 1236 Chicago Avenue in Evanston, Illinois.
 - **Church Street Parking Garage** - Six-story post-tensioned concrete parking structure at 525 Church Street in Evanston, Illinois.
 - **Maple Avenue Parking Garage** - Six-story post-tensioned concrete parking structure at 1800 Maple Avenue in Evanston, Illinois.
 - **Service Center Building D Garage** - One-story precast concrete parking structure located at 2020 Asbury Avenue in Evanston, Illinois.
 - **Sherman Plaza Parking Garage** - Eleven-story post-tensioned concrete parking structure at 1600 Sherman Avenue in Evanston, Illinois.

1.3. Assessment Methods

The assessment involved review of the existing documents covering the original design of the structures and previous repair projects, and an engineering investigation of each structure that included a visual survey and a delamination survey. Based on the findings from those surveys, inspection openings, structural analyses, supplemental detailed inspections, and concrete material sampling and testing were performed where appropriate. A detailed description of the evaluation methods we used is provided below.

1. **Review of Available Documentation** - WJE reviewed available documents describing each garage structure. This included the existing structural design drawings, reports and results of recent inspections by WJE and others, and other available documents regarding the condition and construction of the garages. This information was used to gain an understanding of the original structure, to create field sheets for field data collection during the garage condition surveys, and to review previous repair work. WJE reviewed the following documents associated with each structure:

Chicago Avenue Parking Garage

- Repair drawings titled "City of Evanston 2011 Parking Lot 60 Repairs" by Teng and Associates, Inc. dated March 18, 2011

Church Street Parking Garage

- Original Structural and Architectural drawings titled "Church Street Plaza" by Arnold and O'Sheridan, Inc., John Macsai and Associates Architects Inc., and Cosentini Associates Consulting Engineer, dated April 7, 1988 and revised February 21, 1989

Maple Avenue Parking Garage

- Original drawings for the Maple Avenue Parking Structure entitled, "Church Street Plaza Parking Structure" by Walker Parking Consultants, dated October 22, 1999. The name for this garage was changed to the Maple Avenue Parking Garage at some date after the drawings were issued.

Service Center Building D Garage

- Original drawings titled “City of Evanston Public Works Service Center” by Sisco/Lubotsky Associates, Ltd. and Consoer/Morgan Architects dated April 1980
- Drawings for the “Evanston Municipal Service Center - Building D Parking Deck Repairs”, prepared by Carl Walker, Inc., and issued for Bidding and Construction, December 1, 2012
- Report titled “Engineering Condition Appraisal and Post-Restoration Report” for the “City of Evanston Municipal Service Center Building D Parking Deck Evaluation” by Carl Walker, Inc., dated February 11, 2014
- Report entitled, “Condition Assessment Evanston Service Center Parking Deck and Garage” by WJE, dated August 14, 2017
- Drawings for the “Service Center Parking Deck Restoration” by WJE, dated December 21, 2017
- Service Center Building D Structural Evaluation Photos taken March 31, 2020

Sherman Plaza Parking Garage

- Original drawings titled “Sherman Plaza Parking Garage” by Daniel P. Coffey and Associates, LTD, dated December 8, 2004 and revised March 21, 2005
- Report entitled, “Sherman Plaza Self-Park Garage Façade Condition Assessment” by WJE, dated June 4, 2012
- Drawings entitled, “2013 Sherman Plaza Garage Façade Repairs” by WJE, dated March 12, 2013

WJE also reviewed the following documents which were associated with multiple garages:

- Parking Garage Maintenance Manual prepared by Halvorson and Partners Structural Engineers, dated January 18, 2010
- Report on the “Evaluation of Parking Garages: Church Street Self-Park, Maple Avenue Self-Park, Sherman Plaza Self-Park” by Halvorson and Partners Structural Engineers, dated January 2010
- Drawings entitled, “2011 Comprehensive Parking Garage Repair Project” for the Church Street Self-Park, Maple Avenue Self-Park and Sherman Plaza Self-Park, by WJE, dated May 12, 2011
- Drawings entitled, “2016 Church & Maple Garage Repairs” CTL Group - Construction Technology Laboratories, dated August 8, 2016
- Drawings for 2017 Parking Garage Improvements, entitled “Parking Garage Coatings and Elevator Floors - 1800 Maple Avenue and 821 Davis Street” by the City of Evanston Public Works Agency, dated May 25, 2017

2. **Review of Existing Conditions** - A field survey was performed to review and document the current condition of the five parking structures. The specific tasks in this review included the following:
 - a. **Visual Survey** - All exposed surfaces of the garage structures were visually reviewed to identify and document the location, extent, and nature of observable deterioration. Areas of spalled or deteriorated concrete, mineral and corrosion staining indicative of moisture infiltration, cracking in the concrete, corrosion of steel elements, displacement of structural elements, and other distress in the structural systems were noted on plan views of the structures. These notes were

supplemented by photographs of typical and significant findings. This review provided context for the existing conditions and the current state of deterioration, and allowed us to identify typical locations where repair is required.

- b. **Delamination Survey** - Delaminations are planar cracks in the concrete that form parallel to the surface and are usually caused in concrete by corrosion of the embedded steel elements or debonding of the concrete from the substrate. With delaminations caused by corrosion of steel, the volume of the corrosion by-products is greater than the original volume of steel, so localized tensile stresses develop in the concrete around the steel as corrosion occurs, causing the concrete to crack and split as the corrosion continues. At areas of debonded topping, a delamination could be caused by corrosion of embedded steel in the concrete substrate or by failure of the bond between the topping and the substrate.

For this survey, areas of delaminated and unsound concrete, and incipient spalling were identified by mechanical sounding using two methods. For horizontal surfaces, a length of chain was dragged over the surface of the concrete. For vertical or overhead surfaces, the concrete surface was struck with a mason's hammer. Changes in sound produced by the mechanical sounding indicate delaminations in the concrete. In areas of sound concrete, the mechanical sounding produces a ringing sound, and when a delamination is encountered, a hollow, drum-like sound is produced.

A delamination survey was performed on all top of slab surfaces in these garages, except in locations obstructed by vehicles or otherwise inaccessible. Furthermore, localized sounding was performed on the underside of floor slabs at those locations where cracking, spalling, staining, existing patches, or other evidence was present indicating that possible deterioration and/or delamination of the concrete has occurred. All sounding was performed following the procedures outlined in ASTM D 4580, Standard Practice for Measuring Delaminations in Concrete Bridge Decks by Sounding, Methods B and C. Specific findings were recorded on plan views of the structures, which were then utilized to estimate repair quantities.

1.4. Executive Summary

The five parking structures reviewed during this study were in generally good condition. Some deterioration of the structural elements was observed. The deterioration was generally indicative of water infiltration through floor slabs or relative movement of structural elements. The issues identified were prioritized as being of high, medium, or low importance. The following summarizes the findings for each structure:

- **Chicago Avenue Parking Garage** - General deterioration in the structure was noted as being the result of water and chloride exposure due to failures in the various coating systems present. The high and medium priority items identified for the Chicago Avenue Parking Garage were:
 - Water infiltration through the second and ground floor slabs was observed, resulting in the failure of the fireproofing on the steel beams and corrosion of the steel beams.
 - The bonded topping was delaminated at several areas.
 - Breaches and wear were observed in the traffic-bearing membrane.
 - The concrete encasement of the base of columns was becoming separated from the steel.

Additional low priority items were also noted.

- **Church Street Parking Garage** - General deterioration in the structure was noted as being the result of water and chloride exposure. No high priority items were identified for the Church Street Parking Garage, but the following medium priority items were noted:
 - Delaminated concrete was observed at localized areas on the vertical faces of columns and underside of structural slabs.
 - Multiple polyurethane expansion joint seals between the stair towers and parking deck were observed to be in varying condition throughout the garage.
 - Significant efflorescence and mineral deposits were observed coming from cracks and cold joints in the Level 6 concrete pool structure (while Level 6 is not owned by the City, leaking from the pool likely contains chlorides and other deleterious materials).

Additional low priority items were also noted.

- **Maple Avenue Parking Garage** - Significant findings of deterioration were of limited scope considering the size of the garage. High and medium priority items identified for the Maple Avenue Parking Garage included:
 - A spandrel wall was damaged from vehicular impact.
 - Holes in beams were cored through steel reinforcement.
 - Concrete was spalled in the northwest stairwell.
 - Delaminated concrete was observed at localized areas on the top surface and underside of structural slabs, and on the vertical face of columns.
 - Loose or missing grout was identified at post-tensioning strand grout pockets.
 - Failed sealant at various locations
 - Leaking cracks in the supported slabs
 - Cracks in beams and columns
 - Leaking storefront system in the southeast stairwell
 - Localized concrete deterioration of the stairs

Additional low priority items were also noted.

- **Service Center Building D Garage** - The Service Center Building D structure was observed to be in generally good condition, with no high priority items, and medium priority items only consisting of shifting of non-structural CMU partition walls. Additional low priority items were also noted.
- **Sherman Plaza Parking Garage** - General deterioration in the structure was noted as being the result of water and chloride exposure due to sealant failures, along with multiple locations of cracking with unidentified causes. The high and medium priority items identified for the Sherman Plaza Parking Garage included:
 - Abnormal cracking and corrosion staining on two post-tensioned roof deck beams
 - Pattern cracking observed in the concrete deck from Level 11 to the roof
 - Delaminated concrete was observed at localized areas on the top surface and underside of structural slabs, and on the vertical face of columns.
 - Loose or missing grout at some post-tensioning strand grout pockets
 - Missing shim plates or bearing pad between facade bearing connection and the structure at one location

- Poor bearing conditions at several facade panel support locations
- Visibly failed or leaking joint sealant throughout the garage
- Three deck locations with exposed post-tensioning strand sheathing
- One failed steel stair tread in the southwest stairwell
- One failed barrier cable
- Externally-mounted sliding deadbolt installed on the exterior of the northeast stair vestibule doors

1.5. Acknowledgement

This study was conducted under the direction of Mr. Shane Cary, Project Manager for the City of Evanston, with assistance provided by Mr. Michael Rivera of the City of Evanston. Their guidance and assistance are gratefully acknowledged.

Parking Garage Structural Assessment

City of Evanston RFP 20-19
Chicago Avenue Parking Garage
Evanston, Illinois



2. CHAPTER 2 - CHICAGO AVENUE PARKING GARAGE

2.1. Description of Structure/Background

The Chicago Avenue Parking Garage is the ground floor of a seven-story multi-family residential building. The structure is bordered by Chicago Avenue to the east, Union Pacific train tracks to the west, commercial property to the north, and multi-family residential buildings to the south. The parking structure is rectangular in plan, except for the slight angling of the west edge of the structure to mirror the Union Pacific right-of-way, with overall view dimensions of approximately 192 feet by 67 feet. A vehicular entrance to the parking garage is located on the east side of the garage. The structure consists of precast concrete planks with a cast-in-place topping slab supported by steel columns and beams. The steel beams are coated with a spray-applied fireproofing material. The topping slab is coated with a traffic-bearing waterproofing membrane system. The City-owned portion of the structure is confined to the ground floor parking area. A repair project performed in 2011 included removal and replacement of the existing traffic-bearing waterproofing membrane and repair of cracks. A plan view of the ground floor is shown in Figure 2.1.

2.2. Field Assessment

WJE was on-site to perform visual and delamination surveys of the City-owned portion of the structure on August 8, 2020. The delamination survey included the top surface of the ground floor deck and the concrete encasements of the columns. The visual survey included observation of the underside of the ground floor and the second floor, as well as the top surface of the ground floor, and observation of the masonry walls along the perimeter of the parking area. The top surface of the second floor was not reviewed as it is not part of the City-owned portion of the structure.

2.2.1. Visual Survey

A visual survey of the exposed surfaces of the parking garage was conducted on the ground floor and from the basement reviewing the City-owned portions of the structure in all accessible areas. Notable observations are as follows:

- The sign above the vehicular entrance off of Chicago Avenue is falling down on the south side, apparently due to a failed anchor, as shown in Figure 2.2.
- Cracks on the underside of the precast planks parallel to the span of the planks were observed on the underside of the ground floor deck. No significant displacement was observed at these cracks.
- Leaks through the ground floor deck into the basement were observed at several locations, with an example shown in Figure 2.3. These leaks were generally located along column lines and at joints between precast planks, and coincided with cracks in the traffic-bearing membrane and debonded topping on the deck top surface. In general, minimal corrosion staining was observed on the concrete at these locations.
- Leaks through the second floor into the City-owned portion of the structure were observed. An example is shown in Figure 2.4. The leaks were generally located along column lines and at a couple of joints in the precast planks. No corrosion staining was observed at these locations.

- Failed fireproofing was observed on the underside of the second floor (Figure 2.5) and the ground floor (Figure 2.6). The steel beams were generally corroded at these locations. Approximately 200 linear feet of failed fireproofing was observed on the underside of the second floor, with approximately 100 linear feet of failed fireproofing on the underside of the ground floor.
- The traffic-bearing waterproofing membrane was debonded or completely failed for total area of approximately 10 square feet. An example of this condition around a floor drain is shown in Figure 2.7. Additionally, the surface of the waterproofing membrane was heavily worn in some areas as shown in Figure 2.8.
- The coating systems on miscellaneous exposed steel elements such as bollards and pipe guards had failed, and the steel was corroding. A typical example of a pipe guard is shown in Figure 2.9.
- Cracks in the mortar joints were observed in the partition walls for the stairwells and along the building perimeter. Approximately 300 linear feet of cracks in the mortar joints were observed. An example of a crack in such a wall is shown in Figure 2.10.
- Additionally, cracks were observed in some of the concrete masonry units (CMU) comprising the partition walls. Approximately 50 such units were observed to be cracked. An example of one such crack is shown in Figure 2.11. No evidence of water intrusion was observed at these locations.
- The pedestrian doors on the north side of the garage were heavily corroded at their bases and did not easily open. One of the bases of these doors is shown in Figure 2.12.

2.2.2. Delamination Survey

As noted above, WJE performed a delamination survey of the top surface of the ground floor deck and the column encasements to identify locations of delaminated concrete. Since this structure has a bonded topping on the precast planks and a concrete encasement on the bottom of the steel columns, any delaminations identified by this survey are most likely debonded concrete topping or encasement concrete debonded from the steel column.

Approximately 200 square feet of delaminations were found on the top surface of the ground floor deck. Additionally, approximately 200 square feet of delaminated concrete encasement was identified on the columns, most of which also exhibited vertical cracks. One example of a cracked and delaminated concrete encasement of a column is shown in Figure 2.13.

2.3. Discussion and Recommendations

The Chicago Avenue Parking Garage is in fair condition and exhibits deterioration consistent with moisture and chloride exposure for a public parking garage of this age. A repair project was undertaken approximately 10 years ago to extend the service life of the garage. At this time, some deterioration has recurred and is progressing.

2.3.1. Concrete Deterioration

The delaminations observed on the top surface of the ground floor are most likely areas of debonded topping. To protect the precast plank below the topping from exposure to water and chlorides, the topping should be repaired and protected. These areas can be addressed by removal of the existing

debonded topping slab, adequate preparation of the exposed concrete substrate, replacement of the affected portion of the topping slab, and protection of the completed repairs. This work should be performed within the next couple of years.

The sections of delaminated concrete encasement at the base of the columns above the ground floor should be repaired to protect the columns from water and chloride exposure and to re-establish fire protection for the steel column. The cracks in the concrete encasement likely indicate that the steel column is corroding and exerting stress on the encasement, and resulting in debonding of the encasement from the steel. To repair the column and encasement, the debonded concrete encasement should be removed, the steel surface blasted clean and coated with a corrosion-inhibiting coating, and new concrete cast to restore the original cross section. Based on the extent of observed distress in the encasement and the age of the structure, it is not anticipated that repairs of the steel column would be needed if the issue is addressed in the next five years.

The cracks in the precast planks do not appear to exhibit relative displacement along their length. As such, no repairs are warranted at this time. The condition should be monitored to ensure that no relative displacement occurs along the crack, and that no leakage through the crack is occurring. If relative displacement occurs, repairs to strengthen or repair the precast plank would be needed.

2.3.2. Traffic-Bearing Waterproofing Membrane Deterioration

Areas of debonded, cracked, and worn traffic-bearing waterproofing membrane provide an avenue for water and chloride penetration into the concrete slab and into the space below. This combination will lead to deterioration of the concrete over time, so this condition should be remedied to ensure the integrity of the structure. In tandem with concrete repairs to the concrete elements of the structure, the waterproofing membrane should be repaired to protect the existing and newly repaired concrete. To repair the waterproofing membrane at locations with new concrete or areas with cracked or failed membrane, the substrate should be adequately prepared, and a new full system traffic-bearing waterproofing membrane installed on the horizontal surface and flashed up adjacent vertical surfaces. At areas with worn membrane, the existing membrane can be abrasively blasted, and a new wear course of the membrane system applied to the existing membrane. Cracks in the concrete substrate will be routed and sealed as part of this repair. These repairs should be performed in conjunction with the concrete repairs.

2.3.3. Steel and Fireproofing Deterioration

Where the structural and miscellaneous steel elements of the garage have been exposed to water and chloride, the coating system and fireproofing for the steel has failed, and the steel has started to corrode. The failure of the fireproofing puts the steel in danger of losing strength during a fire event and poses a safety hazard. Additionally, continued corrosion of the steel can lead to section loss and reduced strength. As such, these two conditions should be addressed to preserve the load-carrying capacity of the structure and to ensure conformance with building codes with regards to life safety. To repair both conditions, the steel should be blasted clean, a corrosion-inhibiting coating applied, and the fireproofing restored. These repairs should be performed within the next five years. It is our understanding that only the steel under the ground floor and its fireproofing is the responsibility of the City.

2.3.4. Miscellaneous Items

The sign outside of the garage appears to have a failed anchor at one corner. The anchor should be replaced to ensure that the sign does not fall and become a hazard. This repair should be performed as soon as possible.

As long as the corroded doors still function, the choice to repair them is an aesthetic decision. However, if doors are required as emergency exits and cannot be opened, they must be repaired. To repair the two doors on the north side of the garage, the doors and the frames should be removed and replaced.

The cracked mortar and CMU are most likely due to normal movement of the structure. As the walls do not serve a structural purpose and are not directly exposed to the elements on the exterior, the decision to repair them is primarily an aesthetic concern. To repair the cracked mortar joints, the existing mortar would be ground out and new mortar placed in lifts to replace the cracked mortar. To repair the cracked CMU, the cracks can be routed, and new mortar placed in the routed joint. Alternatively, the cracked CMU block can be removed in its entirety, and a new block installed.

2.3.5. Estimate of Probable Repair Costs

A repair program to address the above-mentioned items is warranted within the next five years. To assist the City with planning repairs for this structure, we have developed a projection of the costs associated with the recommended repairs described above. A breakdown of the projected costs and priorities for each of the work items identified is provided in Table 2.1 below. The repairs listed below are believed to be the responsibility of the City of Evanston, based on conversations with City of Evanston staff.

Table 2.1. Estimate of Probable Repair Costs for Chicago Avenue Parking Garage (City Responsibility)

Priority	Repair Item	Estimated Quantity		Unit Cost		Total Cost
High	Failed Sign Anchor	1	Each	-	-	\$500
Medium	Bonded Topping Concrete Repair	200	Sq Ft	\$75	/Sq Ft	\$15,000
Medium	Rout and Seal Cracks	400	Lin Ft	\$10	/Lin Ft	\$4,000
Medium	Repair of Concrete Encasement	200	Sq Ft	\$150	/Sq Ft	\$30,000
Medium	Clean and Coat Exposed Steel Beams	100	Lin Ft	\$75	/Lin Ft	\$7,500
Medium	Repair Fireproofing	100	Lin Ft	\$75	/Lin Ft	\$7,500
Medium	Replace Full System Traffic-Bearing Membrane	10	Sq Ft	-	-	\$3,000
Low	New Wear Course for Traffic-Bearing Membrane	12800	Sq Ft	\$5	/Sq Ft	\$64,000
Low	Painting of exposed steel	1	Each	-	-	\$4,000
Low	Tuckpointing	300	Lin Ft	\$15	/Lin Ft	\$4,500
Low	Replacement of cracked CMU	50	Each	\$100	/Each	\$5,000
Low	Replacement of pedestrian doors	2	Each	\$4,000	/Each	\$8,000
Subtotal						\$153,000
General Conditions (20%)						\$32,000
Engineering (8%)						\$15,000
Total						\$200,000

Repair items understood to be the responsibility of the residential building and not that of the City are listed below in Table 2.2. These do not include repairs to the top surface of the second floor, as this was not included in the scope of this review.

Table 2.2. Estimate of Probable Repair Costs for Chicago Avenue Parking Garage (Building Responsibility)

Priority	Repair Item	Estimated Quantity	Unit Cost	Total Cost
Medium	Clean and Coat Exposed Steel Beams	200 Lin Ft	\$75 /Lin Ft	\$15,00
Medium	Repair Fireproofing	200 Lin Ft	\$75 /Lin Ft	\$15,00
Subtotal				\$30,000
General Conditions (30%)				\$10,000
Total				\$40,000

Because the corrosion process is ongoing, concrete and steel deterioration will continue if unrepaired, and if the protective membrane and coatings are not restored. As a result, the quantities projected above will increase with time. Therefore, it should be anticipated that the cost and extent of the repairs will increase if the repair work is postponed for a significant period of time. Additionally, the costs are estimated in 2021 dollars. Some of the high unit costs reflect the small quantity of the repair items.

2.4. Figures

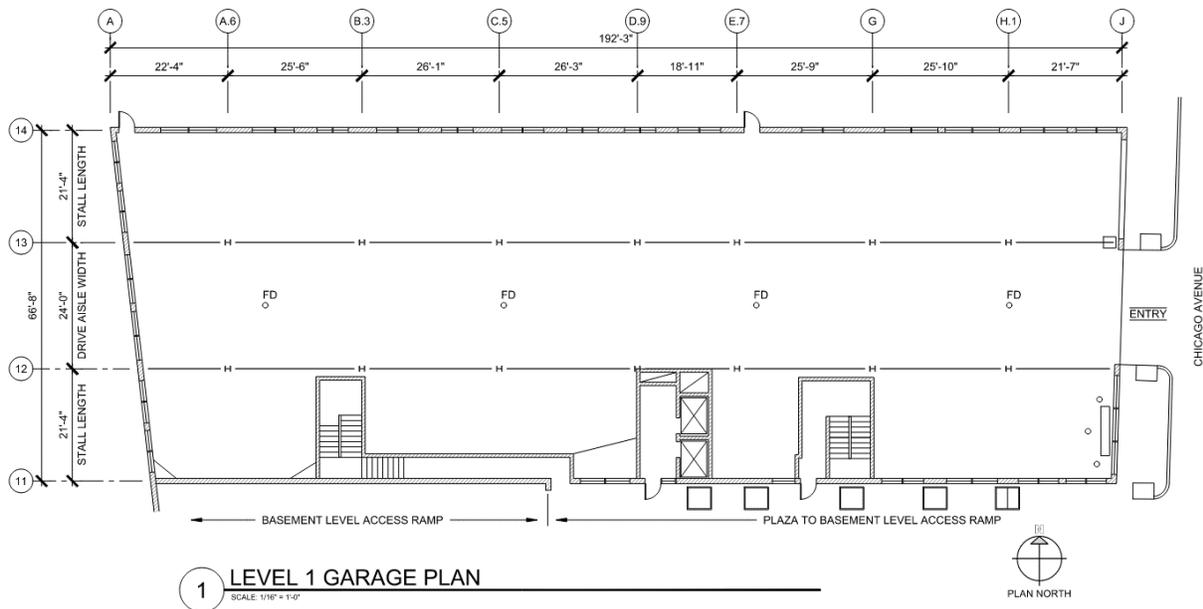


Figure 2.1. Plan view of the ground floor of the Chicago Avenue Parking Garage



Figure 2.2. Sign anchor failed above entrance from Chicago Avenue, highlighted in red box

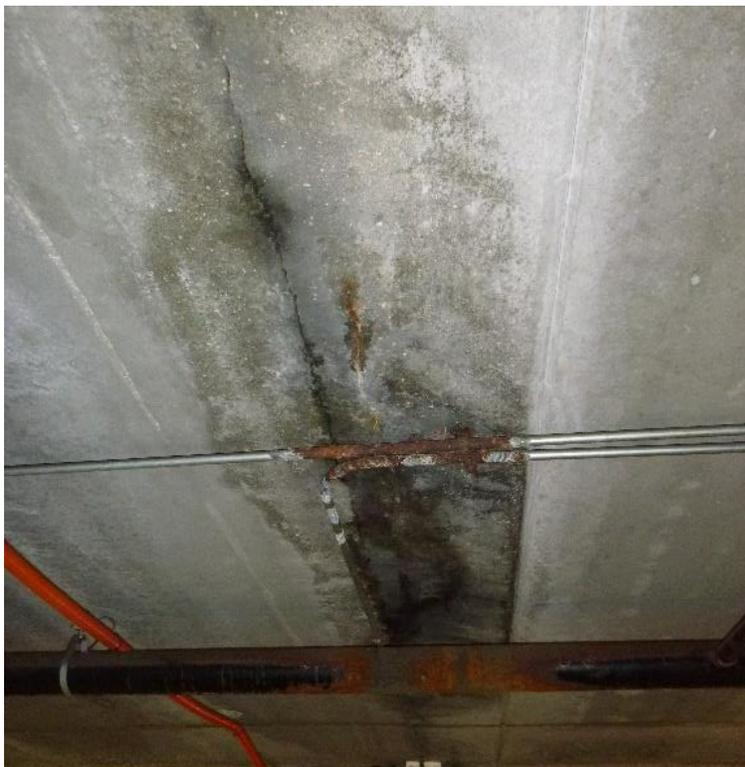


Figure 2.3. Leak through the ground floor deck



Figure 2.4. Leak through the second floor deck



Figure 2.5. Failed fireproofing on a second floor steel beam, exposing a corroded section of steel



Figure 2.6. Failed fireproofing on a ground floor steel beam, exposing a corroded section of steel



Figure 2.7. Debonded and failed membrane at a floor drain on the ground floor



Figure 2.8. Worn membrane on the ground floor deck



Figure 2.9. Corroded steel pipe guard



Figure 2.10. Crack in CMU wall, highlighted in red



Figure 2.11. Cracks in CMU wall at exterior window frame, highlighted in red



Figure 2.12. Corroded door and door frame at pedestrian entrance on the north side of the garage

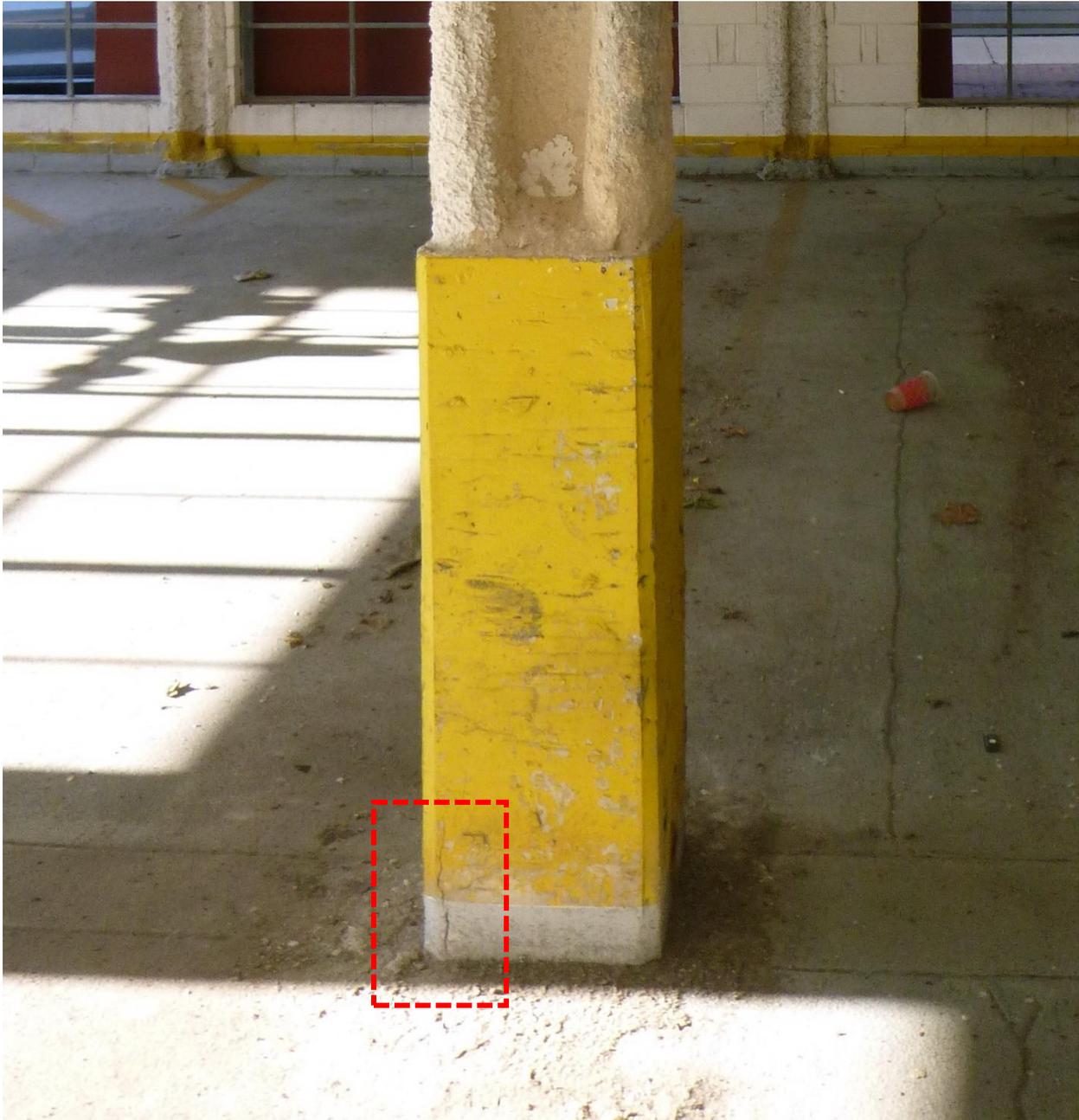


Figure 2.13. Delamination of concrete encasement at the base of a column above the ground floor, highlighted in red box

Parking Garage Structural Assessment

City of Evanston RFP 20-19
Church Street Parking Garage
Evanston, Illinois



3. CHAPTER 3 - CHURCH STREET PARKING GARAGE

3.1. Description of Structure/Background

The Church Street Parking Garage is a post-tensioned concrete structure beneath and adjacent to the Evanston Place Apartments building. The structure is bordered by Church Street to the south, Clark Street to the north, an alley to the east, and the apartment structure to the west. The garage is serviced at the northeast and southeast corners by two independent conventionally-reinforced concrete stairwell structures that are separated from the garage structure by expansion joints. Original design drawings are dated to 1988. The parking structure is approximately rectangular in plan, with overall dimensions of approximately 517 feet by 111 feet.

The structural system for the parking garage floors is a two-way post-tensioned flat slab except for the ground floor, which is a concrete slab-on-ground with reinforced concrete foundation walls around the perimeter. Each floor of the garage is divided into an east and west bay, which are sloped in opposite directions to provide for vehicular traffic between levels. Typically, the parking structure comprises five stories, with a partial floor above Level 5 at mid-length of the structure to connect the upward traffic in the West Bay of Level 5 with the downward traffic in the East Bay of Level 5. North-south expansion joints are provided where the two bays meet, which is at the north and south ends and at the center crossover. Due to the overall length of the structure in the north-south direction, east-west expansion joints are provided across the width of the structure that divide the structure into thirds. The garage has a precast concrete facade supported on the floor slab and the perimeter columns, and the stairwells have a brick masonry facade. Plan views of a typical supported floor are presented in Figure 3.1 and Figure 3.2.

WJE investigated this parking structure in 2011 and determined that this structure was in generally fair condition with some repairs recommended. Repairs were performed in 2011 and consisted of repairing delaminated concrete, replacing expansion joint seals, routing and sealing cracks, painting exposed facade panel connections, re-coating the existing traffic-bearing waterproofing system on the second level, and installing waterproofing over the base of the interior columns.

3.2. Field Assessment

WJE was on-site to perform visual and delamination surveys of the City-owned portion of the structure on August 24 and August 26, 2020. The visual survey included observation of the top, underside, and vertical surfaces of the supported garage floors, the perimeter facade of the parking structure, and the underside of the Level 6 deck owned by Evanston Place Apartments, which serves as the roof of the parking garage. In addition, a delamination survey was performed on the top surface of the supported garage floors.

3.2.1. Visual Survey

A visual survey of the exposed surfaces of the parking structure was performed in all accessible areas. Notable observations are as follows:

- Efflorescence and mineral deposits were observed along the perimeter of the Level 6 pool at the wall/slab construction joints (see Figure 3.3), and at cracks in the underside of the pool bottom (see Figure 3.4). There are signs of leaking from Level 6 at twelve additional locations of soffit staining or failure, with multiple examples visible in Figure 3.5. Signs of leaking through the Level

6 expansion joints were observed at six locations, an example of which is shown in Figure 3.6, and leaking was also observed between the Level 6 slab edge and the facade panels intermittently along the entire perimeter (see Figure 3.7 for an example). In addition, ten locations of cracking and efflorescence were observed on the underside of Level 6. While the City of Evanston is not responsible for this portion of the structure, deleterious materials passing onto the Level 5 deck below can negatively affect the service life of the City-owned portion of the structure.

- The polyurethane expansion joint seals between the parking structure and door thresholds of the stair structures were observed to have failed at five locations, an example of which is shown in Figure 3.8. The remaining lengths of these expansion joints are open and do not have any expansion joint seal.
- Beneath the northern east-west expansion joints across the East Bay of Level 2 and Level 3, multiple plate connectors and embedded plates were observed to be missing, as shown in Figure 3.9.
- Efflorescence was observed on the slab underside along the perimeter of seventeen block-outs provided in the slab for stressing the post-tensioning tendons, with minor corrosion staining observed at three locations. An example stressing block-out underside with both efflorescence and corrosion staining is shown in Figure 3.10.
- A waterproofing membrane was observed on the supported parking structure up to the top of Level 2. The top coat of the waterproofing membrane on Level 2 shows signs of wear in the turning areas at the north and south ends (shown in Figure 3.11). It was also noted that the top coat has a very low aggregate content in half of the west bay of Level 2 in the southwest corner of the structure.
- The waterproofing membrane in the Level 5 Pool Mechanical Room was observed to be in poor condition (see Figure 3.12). The membrane on the stair treads from Level 1 to Level 2 of both stairwells was also observed to be in poor condition, as shown in Figure 3.13.
- Rusted shot-blasting pellets were observed throughout the structure, suggesting that the deck surface was shot-blasted at some time, presumably for the application of a sealer.
- A shear transfer retrofit was observed beneath the drive lane across the south expansion joint in the West Bay of Level 5 (see Figure 3.14). Five core hole patches above this retrofit were observed to have failed, an example of which is shown in Figure 3.15.
- Approximately 50 linear feet of failed joint sealant was observed throughout the garage.
- The City-owned roof slab at the northeast corner of the garage has six ungrouted stressing pockets for the slab post-tensioning, as shown in Figure 3.16.
- Significant corrosion staining was observed at three grout pockets corresponding to anchors for the traffic barrier cables on Level 2 at Column PG/P48.2 (see Figure 3.17).
- One failed drain pipe was observed on the underside of the Level 4 deck near Column PG/P5, as shown in Figure 3.18.
- Nine locations of notable drain pipe or drain grating corrosion were observed throughout the garage, with examples shown in Figure 3.19 and Figure 3.20.

- Loose or disconnected drain pipe guards were observed at three locations on Levels 1 and 4, an example of which is shown in Figure 3.21.
- Steel cover plates over the west ends of both east-west expansion joints terminating at the west edge of the garage (Column Line PK) on Level 2 were observed to be debonded from the expansion joint and have notable corrosion, as shown in Figure 3.22. The expansion joint seals throughout the remainder of the garage were observed to be in relatively good condition.
- Approximately 15 linear feet of curb delaminations were observed at the Level 1 north entrance to the parking garage.
- An open 6-inch diameter core hole was found through the Level 2 concrete deck near Column PK/P11, as shown in Figure 3.23.
- Approximately 20 linear feet of through-cracking was observed at CMU partition walls throughout the structure.
- Approximately 3 square feet of brick masonry facade at a corner of the southeast stairwell at ground level is in need of repointing. This location is shown in Figure 3.24.
- Approximately 50 square feet of concrete scaling was observed at the Level 1 south exit, as shown in Figure 3.25.
- Regularly-spaced cracking was typically observed in the concrete foundation walls.
- Shallow cover over the embedded reinforcing with surface corrosion staining was observed in two locations along the east exterior of the parking structure.

3.2.2. Delamination Survey

As noted above, WJE performed a delamination survey of the top surface of the supported floors in the parking garage to identify locations of delaminated concrete. Locations of delaminated concrete were typically found around column bases where conventional steel reinforcing bars are located near the top of the slab and near joints surrounding block-outs for stressing of the slab post-tensioning tendons. Approximately 200 square feet of delaminations were found on the top surface of the supported floors. This represents less than 1% of the supported floor area in the parking structure. An example of a top surface delamination beneath the Level 2 membrane is presented in Figure 3.26. Additionally, approximately 200 square feet of delaminated concrete was found on both the vertical and the overhead concrete surfaces. An example of a delamination on a vertical concrete surface is shown in Figure 3.27. The delaminations on the vertical concrete surfaces were generally observed at column bases and at columns adjacent to expansion joints. The delaminations on the underside of the structural slabs were generally observed at expansion joints and along the building perimeter. Approximately 25 square feet of concrete delamination and spalling was found on the slab-on-ground of Level 1.

3.3. Further Review of Select Items

After conducting the initial assessment, WJE recommended further review of the Church Street Parking Garage to evaluate the expansion joint retrofit beneath the south expansion joint across the West Bay of Level 5 and to evaluate the chloride ion content of the concrete deck throughout the structure. A site visit for the supplemental review and specimen sampling was made on February 4, 2021.

3.3.1. Level 5 Expansion Joint Retrofit

A shear transfer retrofit was observed across the south expansion joint in the West Bay of Level 5, and it was notable for its large size and unknown purpose. This retrofit did not exist prior to 2011 and was not part of the 2011 repair project, and thus appears to have been installed at some point in the intervening years. The City expressed an interest in determining the purpose and necessity of the retrofit as it significantly reduces the head space for the vehicular traffic beneath it.

The shear transfer retrofit consists of four hollow steel tube sections, each measuring 6 inches wide by 10 inches tall by approximately 17 feet long. Each tube is placed symmetrically across the expansion joint with two 3/4-inch diameter anchor rods affixing the tube to the Level 5 deck on each side of the joint. Stacks of plastic shim plates were observed between the top of the tubes and the underside of the deck at all anchor rod locations. Shim stacks were also observed near six of the eight total locations where the tube coincides with an expansion joint edge. Two of those shim stacks were loose and provided no bearing, which indicates that the shim stacks most likely became loose and fell out from the two locations missing shim stacks. It is also worth noting that each tube has one shim stack that is missing or loose. The tubes are positioned between two sets of original shear transfer plates that are typical of every other expansion joint, and four additional sets of original shear transfer plates were observed along the rest of the length of the expansion joint.

No significant cracking or distress was observed in the concrete deck adjacent to the expansion joint. The westernmost shear transfer tube is shown in Figure 3.28, where the anchor shims, expansion joint edge shims (present on one side and missing on the other side), and adjacent original shear transfer plates can be seen. A view of the expansion joint over the east interior tube is presented in Figure 3.29, where a shim stack in full bearing is present on one side of the joint while a loose shim stack is present on the other side.

3.3.2. Concrete Deck Chloride Ion Content Investigation

Signs of leaking were observed throughout the Church Street Parking Garage, including leaks from the Level 6 swimming pool and efflorescence along the perimeters of the stressing block-outs for the slab tendons. Knowing that water and other material has passed through the deck, and that this structure has been in use for over 30 years, we recommended testing samples of the deck concrete at various locations in order to determine the chloride ion content throughout the garage, which could then indicate the likelihood of future corrosion, and provide a basis for determining appropriate protection and waterproofing options.

Samples of the deck concrete were obtained by drilling holes into the deck in progressive stages to consistent depths, and storing the resulting powder in individual bags. Chloride ion tests were performed at three depths for each sampling location, at average depths of 1/2-inch, 1 1/2-inches, and 2-1/2 inches beneath the top surface of the deck. These samples were taken at three representative locations on each supported level, as well as at the ramp crossover region beneath the Level 6 swimming pool, for a total of 13 locations and 39 individual powder samples. Samples were taken on up ramps and down ramps, in the driving lanes and in the parking stalls, and near and away from block-outs for stressing slab post-tensioning tendons.

The concrete powder samples extracted from the Church Street Parking Garage were brought to our Northbrook, Illinois laboratories for examination and testing. The concrete testing and analysis was performed in-house by WJE personnel. Chloride ion content analyses were performed on each of the 39 powder samples to determine the amount and depth of chloride ion penetration throughout the garage that has occurred to date.

Overall, the chloride ion content values obtained from the samples nearest the deck surface tended to be high, with eight of the 13 topmost (1/2 inch average depth) samples exceeding the corrosion threshold, indicating a high risk of corrosion initiation. Beneath those topmost samples at an average depth of 1-1/2 inches, the chloride values were determined to be above the corrosion threshold at four locations: the two samples taken near block-outs for slab tendon stressing, the sample taken beneath the Level 6 pool, and one sample taken adjacent to a top surface concrete delamination. The chloride values at these four locations were significantly reduced for an average depth of 2-1/2 inches, such that only two of those were above the corrosion threshold. The chloride values at all of the remaining samples were in the range of, or below, the corrosion threshold. This indicates that there is negligible risk for corrosion at the 2-1/2 inch depth, and moderate risk of corrosion at the 1-1/2 inch depth in localized areas. The full results of the chloride ion content testing are provided in the testing report dated February 15, 2021 and contained in Appendix A.

3.4. Discussion and Recommendations

The Church Street Parking Garage is in fairly good condition, which we attribute to the repair and maintenance program enacted by the City, given that this structure has been in service for more than 30 years. Some items of deterioration were noted during the assessment that, while currently do not affect the structural integrity of the parking garage, should be addressed to maintain the garage in good condition and to extend its service life. These conditions generally relate to water and chloride exposure to the concrete and steel portions of the structure, the drainage system servicing the structure, and preventing safety hazards. To extend the service life and to maintain the function of the garage, a repair program should be undertaken.

3.4.1. Concrete Deterioration

The extent of concrete delamination detected on the top surface of the supported floors during this survey was less than one percent of the surface area of the deck, and the percentage of overhead deterioration was even less. On the top slab surface, the deterioration appears to be related to corrosion of embedded steel reinforcement. On the slab underside, the concrete deterioration generally is related to locations of moisture penetration through the floor slab, such as leakage that is occurring along the building perimeter, along expansion joints, and at the perimeters of the block-outs for stressing the slab tendons. At these locations of moisture penetration, water and chlorides from the deicing salts brought into the garage by vehicles during the winter can penetrate into the concrete and contribute to corrosion of the embedded reinforcing steel. The extent of concrete deterioration does not appear to currently affect the load-carrying capacity of the structure or to negatively impact the serviceability of the parking garage. As such, repair of these conditions is of medium priority and should occur within the next five years.

The Church Street Parking Garage is in a unique position where the structure above owned by others can allow deleterious materials to pass onto Level 5 of the parking structure, particularly beneath the Level 6 swimming pool. The City should pursue discourse with the other owner to address the pool leaks within the next year, and the other Level 6 leaks within the next one to three years.

The corrosion-stained grout pockets on the ends of the barrier cable anchors indicate that the cable anchors are being exposed to water and chlorides, which has led to corrosion of the steel, and which can result in section loss of the steel and reduced load-carrying capacity. The repair of the grout pockets is fairly simple and involves removing the existing grout, cleaning the exposed concrete and steel surfaces, and installing new grout. As the repair of the grout pocket is simpler and cheaper than repairing the end anchor, the grout pockets should be repaired prior to deterioration of the end anchor occurring. The missing grout pockets in the northeast roof structure also should be filled for similar reasons. These repairs are of medium priority and should be addressed within the next five years.

Spalled concrete on the slab-on-ground and curbs on the ground floor do not pose structural concerns but could become tripping hazards, and the concrete scaling at the south exit may eventually advance to spalled concrete. Accordingly, these repairs are of low priority and should be addressed as they become safety hazards for the garage patrons.

To restore the serviceability of this garage structure and to extend its service life, the concrete deterioration should be addressed, and the repaired structure should be protected by an effective waterproofing system. This is addressed in the next section.

3.4.2. Waterproofing

Areas of debonded, cracked, and worn traffic-bearing waterproofing membrane provide an avenue for water and chloride penetration into the concrete slab and into the space below. This combination will lead to deterioration of the concrete over time, so this condition should be remedied to ensure the integrity of the structure. In conjunction with repairs to the concrete elements of the structure, the waterproofing membrane should be repaired to protect the existing and new concrete. To repair the waterproofing membrane at locations with new concrete or areas with cracked or failed membrane, the substrate should be adequately prepared, and a new full traffic-bearing waterproofing membrane system installed on the horizontal surface and flashed up adjacent vertical surfaces. At areas with worn membrane, the existing membrane can be abrasively blasted, and a new wear course of the membrane system installed on the existing membrane. Cracks and joints in the concrete substrate should be routed and sealed as part of this repair. These repairs should be performed in conjunction with concrete slab repairs.

The traffic-bearing waterproofing membrane only extends to the top of Level 2. Above Level 2, the top concrete surface of the floor slab is bare. However, the appearance of the concrete surface and the presence of rusted shot-blasting pellets suggest that a sealer may have been applied to the remainder of the deck. The results of the chloride ion testing indicate that the risk of corrosion initiation is relatively high within the top inch of the slab concrete, and at greater depths at critical locations. In order to reduce the likelihood of corrosion initiation, protection of the remaining levels of the garage is warranted. As a result, the penetrating sealer should be maintained so that the floor slab on Levels 3 through 5 will continue to be protected. Generally, a surface treated with a penetrating sealer may require reapplication

of the sealer every five to ten years as necessary to adequately protect the concrete against additional penetration of water and chlorides. Cracks and joints in the concrete substrate should be routed and sealed as part of this sealer application.

3.4.3. Miscellaneous Items

Many of the block-outs for slab tendon stressing showed signs of water penetration along their perimeters, so we recommend routing and sealing the perimeter joint on the top deck surface to reduce further water and chloride penetration. This should be performed in conjunction with any membrane repairs and sealer reapplication. The application of a small section of waterproofing membrane at these locations could also be considered.

The floor drainage system throughout the garage showed signs of deterioration in multiple ways. The failed drain pipe servicing a Level 4 deck drain should be replaced as soon as possible to avoid any corrosion staining from it landing on vehicles parked beneath it, as well as to prevent chloride-laden water from passing to the deck below. Three drain pipe guards on Levels 1 and 4 were observed to be loose or disconnected, and these should be replaced as soon as possible to avoid potential damage to the affected drain pipes. Nine other locations of drain pipe or drain cover corrosion were observed throughout the garage, and they should be replaced on a similar timeline for other low priority items.

Sets of shear transfer plates are present along the east-west expansion joints, and multiple plates were observed to be missing throughout the structure. While we did not tend to find signs of excessive deflection or top surface cracking in these regions, it would be best to replace any missing plates during the next repair project. This is a low priority item, though, considering the good condition of the adjacent floor slab we observed.

After more closely investigating the Level 5 shear transfer retrofit, we could not determine the motivation for its installation. The nature of the retrofit is such that it appears to be intended to address a load transfer or excessive relative deflection issue. However, no evidence of significant relative deflection was noted at any of the expansion joints in this structure, and the original shear transfer plates across the expansion joint were all present at this location, and were of the same construction as the shear transfer plates elsewhere in the garage. Furthermore, the retrofit is substantially larger than what our engineering judgement would expect to be required in such a location. The mismatch between the in-service retrofit and our expectations gives us pause before recommending its removal. We request that the City re-investigate its records to provide any further clues as to the design intent.

The failed polyurethane expansion joint seals between the parking structure and stair structures can allow water to pass from one level down to the next, and should therefore be replaced. However, the more surprising feature is the unsealed opening along the remainder of these expansion joints. Given that only minor concrete deterioration was noted on isolated portions of the stair tower, it may be the case that the garage deck is adequately sloped to prevent water from flowing toward this joint. If the condition of the stair towers and garage deck in these regions were observed to deteriorate in the future, a compression seal would be an effective means of preventing water from passing between the two structures. For now this remains a low priority item, as only minor deterioration was observed in these areas.

In general, the expansion joint seals in the garage floors were observed to be in relatively good condition, although there were two locations on Level 2 with corroded steel cover plates adjacent to, but debonded

from the expansion joint seals. As this condition does not appear to be leading to deterioration of the structure below, it may be best to replace the corroding cover plates at the same time as the next expansion joint seal replacement program. All expansion joint seals were replaced during the 2011 repair project, but we cannot determine if those same seals are still in service. Given that the seals are in good condition at this time, but that the typical service life of an expansion joint seal is 10 to 15 years, the City should expect that the current joint seals may require replacement in five to ten years.

The cracked CMU partition walls are most likely due to movement of the structure. As the walls do not serve a structural purpose and are not exposed to the elements on the exterior, the decision to repair them is only an aesthetic concern. To repair the cracked CMU, the cracks can be ground out, and new mortar placed in the prepared joint. Alternatively, the cracked CMU blocks can be removed, and new blocks installed.

Several of the smaller items identified during the inspection should be repaired during the next major repair project. This includes replacing failed joint sealant throughout the garage, repointing the brick masonry facade at the corner of the southeast stairwell on ground level, and infilling the open core hole through the Level 2 deck. We recommend monitoring the foundation wall cracks and shallow cover condition on the garage exterior rather than undertaking any repairs of these conditions at this time.

3.4.4. Estimate of Probable Repair Costs

A repair program to address the above-mentioned items is warranted within the next five years. To assist the City with planning repairs for this structure, we have developed a projection of the costs associated with the recommended repairs described above. A breakdown of the projected costs for each of the work items and prioritization of the repairs is provided in Table 3.1 below, while the subsequent Table 3.2 provides projected costs for maintenance repairs that should be budgeted for five to ten year timeframes. It is our understanding, based on conversations with the City of Evanston, that the items in Table 3.1 and Table 3.2 are the responsibility of the City to repair and maintain.

Table 3.1. Estimate of Probable Repair Costs for Church Street Parking Garage

Priority	Repair Item	Estimated		Unit Cost		Total Cost
		Quantity				
Medium	Partial-depth vertical and overhead concrete repair	200	Sq Ft	\$150	/Sq Ft	\$30,000
Medium	Replace failed stair joint seals	10	Each	-	-	\$7,000
Low	Partial-depth top surface concrete delamination	200	Sq Ft	\$100	/Sq Ft	\$20,000
Low	Slab-on-ground and curb concrete repairs	50	Sq Ft	\$50	/Sq Ft	\$2,500
Low	PT grout pocket repair	10	Each	-	-	\$2,000
Low	Repair of traffic-bearing waterproofing membrane	200	Sq Ft	\$40	/Sq Ft	\$8,000
Low	Replace sealant	600	Lin Ft	\$10	/Lin Ft	\$6,000
Low	Expansion joint shear transfer plate repairs			Allowance		\$7,500
Low	Floor drain system repairs			Allowance		\$15,000
Low	CMU and brick masonry repair			Allowance		\$2,000
Subtotal						\$100,000

Priority	Repair Item	Estimated Quantity	Unit Cost	Total Cost
	General Conditions (20%)			\$20,000
	Engineering (8%)			\$10,000
Total				\$125,000

Table 3.2. Estimate of Long-Term Maintenance Costs for Church Street Parking Garage

Repair Item	Estimated Quantity	Unit Cost	Total Cost
Recoat of traffic-bearing waterproofing membrane	4,500 Sq Ft	\$10 /Sq Ft	\$45,000
Install silane sealer	180,000 Sq Ft	\$0.50 /Sq Ft	\$90,000
Garage floor expansion joint seal replacement	1,300 Lin Ft	\$150 /Lin Ft	\$195,000
New expansion joint seal at open stair joint	200 Lin Ft	\$120 /Lin Ft	\$24,000
Subtotal			\$354,000
General Conditions (20%)			\$71,000
Engineering (6%)			\$25,000
Total			\$450,000

Because the corrosion process is ongoing, concrete and steel deterioration will continue if unrepaired and unprotected, and as a result, the quantities projected above will increase with time. Therefore, it should be anticipated that the cost and extent of the repairs will increase if the repair work is postponed for a significant period of time. Additionally, the costs are estimated in 2021 dollars. Some of the high unit costs reflect the small quantity of the repair item.

In addition to the repair and maintenance items that are the responsibility of the City of Evanston, we also identified a number items that should be addressed by the owner of the adjacent apartment building, as provided in Table 3.3. Since inspecting the apartment region was beyond our scope of work, this table is not an exhaustive list of repair items throughout the remainder of the structure. Rather, it is a list of minimal repairs needed to ensure that their portion of the structure does not negatively impact the City's space. Additionally, we cannot provide cost estimates for these repairs as we could not fully observe the original installation details or current conditions from the top surface.

Table 3.3. Priority Listing of Repairs for the Apartment Building Owner at the Church Street Parking Garage

Priority	Repair Item	Estimated Quantity
Medium	Leaks through pool cracks, cold joints, and penetrations	100 Lin Ft
Medium	Expansion joint seal leaks above Level 5	75 Lin Ft
Medium	Repairs of corroded drain pipe at Level 1 and Level 4 slab penetrations	2 Each
Low	Soffit leaks	12 Each
Low	Leaking between Level 6 slab edge and facade panels along perimeter	300 Lin Ft

3.5. Figures

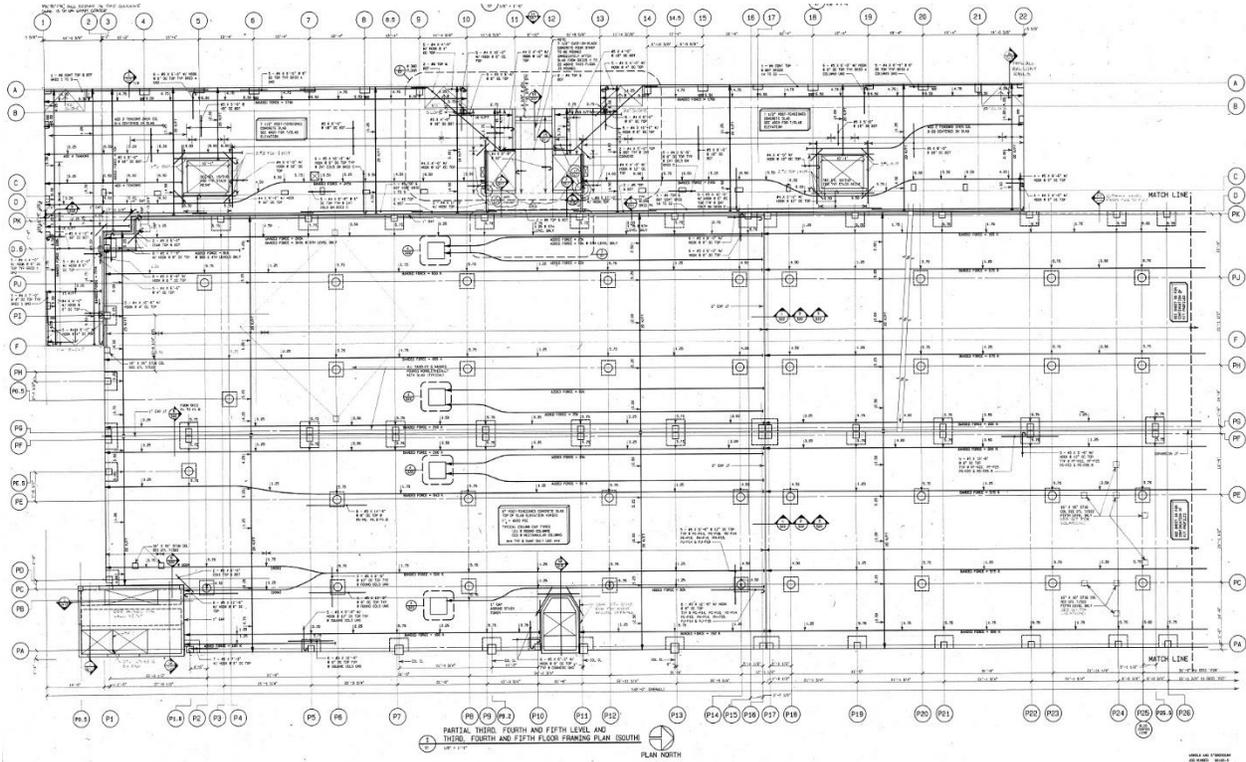


Figure 3.1. Plan view of southern half of a typical floor of the Church Street Parking Garage.

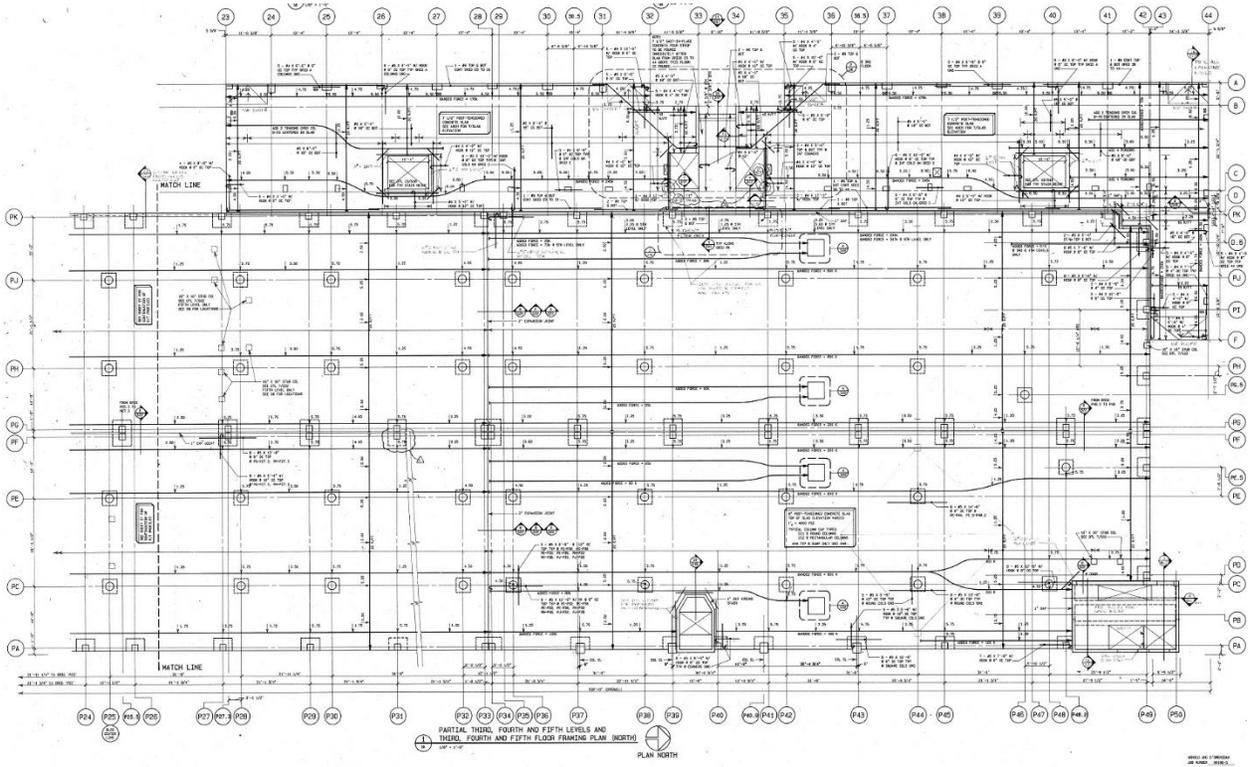


Figure 3.2. Plan view of northern half of a typical floor of the Church Street Parking Garage.



Figure 3.3. Efflorescence and mineral deposits leaching from the construction joint in the south vertical face of the Level 6 swimming pool.



Figure 3.4. Crack with mineral deposits (indicated between red arrows) on underside of Level 6 swimming pool, with moisture and mineral deposits visible on the Level 5 deck below (indicated between orange arrows).



Figure 3.5. Four locations of apparent leaking above Level 5 (indicated by red arrows), as evidenced by failed or discolored soffit panels.



Figure 3.6. Water staining (indicated with red arrow) coming from an expansion joint in the Level 6 slab.



Figure 3.7. Staining on interior of facade panels due to water leaking at the joint between the facade panel and the Level 6 slab.



Figure 3.8. Failure of polyurethane expansion joint seal between stair tower door (upper left) and parking garage deck (lower right).



Figure 3.9. Underside of expansion joint with missing shear transfer plates (indicated by red arrow) and locations of missing embedded plates (indicated by orange arrows).



Figure 3.10. Underside of typical block-out for stressing of slab post-tensioning tendons showing signs of efflorescence and corrosion staining.



Figure 3.11. Waterproofing membrane showing signs of wear through the top coat at the turn at the north end of Level 2.



Figure 3.12. Worn membrane on the floor of the Level 5 Pool Mechanical Room.

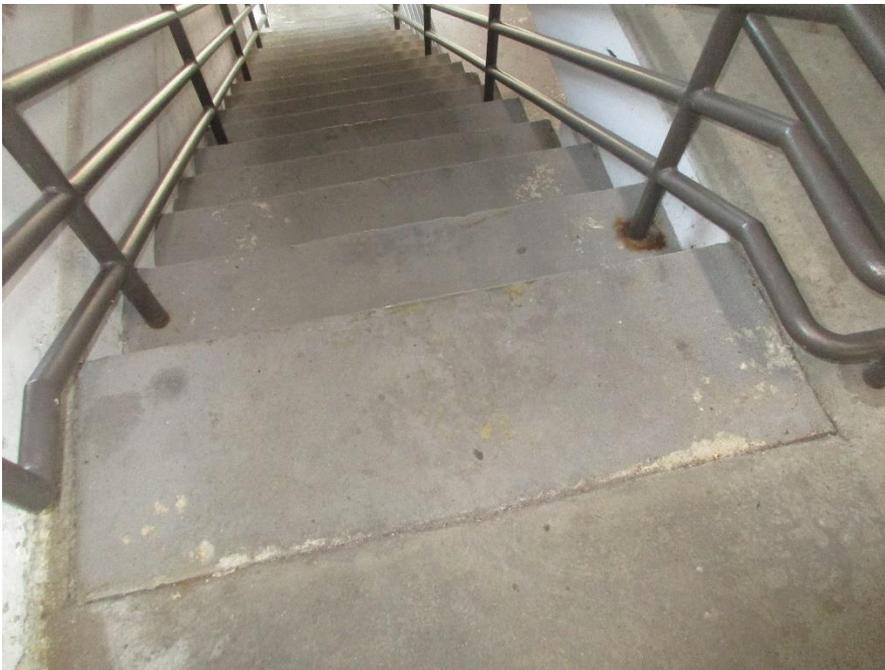


Figure 3.13. Worn membrane on the stair treads between Levels 1 and 2 in the southeast stairwell.



Figure 3.14. Shear transfer retrofit tubes installed beneath the southwest expansion joint of Level 5.



Figure 3.15. Failed patch at core hole (indicated by red arrow) over Level 5 expansion joint retrofit.



Figure 3.16. Ungrouted stressing pockets for slab post-tensioning tendons at the edge of the City-owned roof structure at the northeast corner of the garage.



Figure 3.17. Corrosion staining at grout pockets over Level 2 traffic barrier cable anchors at Column PG/P48.2.

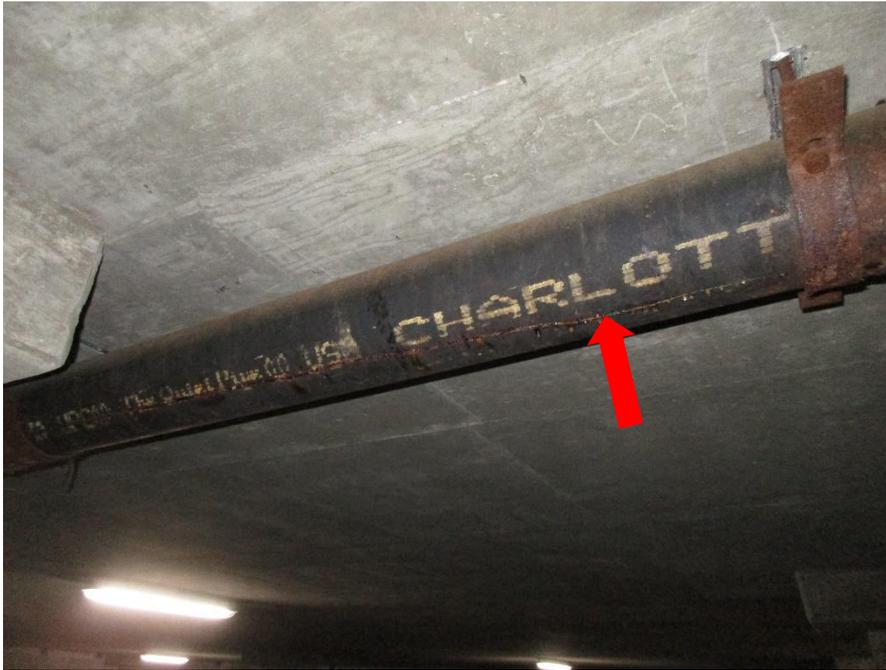


Figure 3.18. Failed drain pipe with water and corrosion along crack.



Figure 3.19. Corroded and leaking floor drain pipe.



Figure 3.20. Corroded floor drain grating.



Figure 3.21. Disconnected drain pipe guard.



Figure 3.22. Corroded steel cover plate over expansion joint of Level 2 deck.



Figure 3.23. Open core hole through the Level 2 deck near Column PK/P11.



Figure 3.24. Failed mortar in masonry facade at the base of the southeast stairwell.



Figure 3.25. Concrete scaling at the south exit.



Figure 3.26. Top surface concrete delamination with perimeter showing through waterproofing membrane on Level 2 (indicated with red arrow).



Figure 3.27. Delamination, cracking, and corrosion staining of the vertical concrete surface on Column PF/P1.8 on Level 4.



Figure 3.28. View of westernmost shear transfer tube showing shims between tube and the Level 5 deck at the anchor locations (indicated by orange arrows) and on one side of the expansion joint (indicated by red arrow). The original shear transfer plates are present in front of the retrofit repair (indicated by yellow arrow).



Figure 3.29. Top of shear transfer tube with a shim stack in full bearing on one side of the expansion joint (indicated between red arrows) and a loose shim stack on the other side (indicated between orange arrows).

Parking Garage Structural Assessment

City of Evanston RFP 20-19
Maple Avenue Parking Garage
Evanston, Illinois



4. CHAPTER 4 - MAPLE AVENUE PARKING GARAGE

4.1. Description of Structure/Background

The Maple Avenue Parking Garage is a six-story post-tensioned concrete structure constructed in 2000. The structure is bordered by Maple Avenue to the east, Union Pacific railroad tracks to the west, a parking lot and a hotel to the north, and a residential high-rise to the south. Vehicular entrances are present on the north and east sides of the garage. An alley runs under the second floor along the west edge of the structure. The structure is approximately rectangular in plan, except for the slight angling of the west edge of the structure to follow the Union Pacific right-of-way, and measures approximately 350 feet by 263 feet in plan. A plan view of the structure is provided in Figure 4.1.

Commercial space is located on the ground floor of the east side of the garage and consists of a marijuana retail establishment to the south and a car rental facility with an associated car wash to the north. The ground floor is mostly slab-on-ground, with a portion on the north side being a supported slab over a confined space detention basin. A small partial floor is located above the sixth floor to provide a cross-over between the two ramped bays of the structure. The supported floors consist of one-way post-tensioned concrete floor slabs spanning north-south between post-tensioned concrete beams. A north-south expansion joint separates the structure into east and west halves. In the east half, all three bays are essentially flat except as sloped for drainage. In the west half, the bays are ramped between floors, except for the west bay, which is essentially flat. Due to the length of the structure in the north-south direction, a pour strip is located near mid-length where the slab tendons are anchored, and where the pour strip concrete was cast back after tensioning of the slab tendons.

WJE investigated this parking structure in 2011 and determined that this structure was in generally fair condition with some repairs recommended. Repairs were performed in 2012 and consisted of installing traffic-bearing waterproofing over pour strips and repairing portions of existing waterproofing throughout the garage, replacing expansion joint seals, installing supplemental out-of-plane supports for exterior spandrel panels, and repair of beams with holes cored through stirrups.

4.2. Field Assessment

WJE was on-site to perform a survey of the parking structure on August 31, September 1, and September 8, 2020. A visual survey was performed, which included observation of the underside of all supported floors as well as the top surface of all floors, and review of the perimeter of the parking structure. In addition, a delamination survey was performed on the top surface of all supported floors and at select vertical and overhead concrete surfaces.

4.2.1. Visual Survey

A visual survey of the exposed surfaces of the parking structure was performed in all accessible areas. Notable observations are as follows:

- Damage to a parapet wall was observed on the interior of the garage along one of the ramped bays. The damaged portion of the wall is shown in Figure 4.2. The damaged portion of the wall displaced outwards from the support by over an inch.

- Core holes were observed at the ends of some beams. Inside the core holes, the stirrup reinforcing bars were observed to have been cut by the coring process. Two of these locations are shown in Figure 4.3 and Figure 4.4. This condition was observed throughout the garage. Some of the locations had hairline cracks on the vertical faces of the beams.
- Five second floor beams near the north vehicular entrance have portions of the bottom surface removed by sawcutting, which resulted in the cutting of portions of the bottom leg of the stirrup reinforcing bars. An example of one of these beams is shown in Figure 4.5.
- Delaminated concrete was observed at the lateral connection for the precast facade panels at three locations on the north elevation at the fifth floor. One example is shown in Figure 4.6. Two locations have previous repairs consisting of stainless-steel bars anchored into the delaminated concrete and the spandrel beam. No visible outward displacement of the precast facade panels was observed at these locations.
- A large spall was observed in the northwest stairwell on the second floor under the west CMU wall. This condition is shown in Figure 4.7.
- The two expansion joint seals on the ground floor at the north end of the structure have debonded nosing material and concrete delaminations along the length of the joint nosing. Additionally, the expansion joint seal to the west of the north entrance has poor detailing at terminations and changes in elevation, with the ends of the gland exposed as shown in Figure 4.8. At one location, this expansion joint seal was cut through as shown in Figure 4.9. Approximately 60 feet of damaged expansion joint seal was observed.
- The expansion joint seals on the upper floors do not show signs of distress or leaking.
- Missing and loose grout pockets at the end of the post-tensioning tendons were observed at various locations throughout the structure. Additionally, other grout pockets had efflorescence emanating from them, indicating the passage of moisture. In total, approximately 350 grout pockets were observed to be loose or missing. An example of a beam end with loose grout pockets is shown in Figure 4.10 and missing grout at a slab tendon stressing pocket is shown in Figure 4.11.
- Failed or damaged sealant was observed throughout the garage. The sealant on the top floor of the structure was inflexible and cracking, particularly the original sealant at the façade panels, with one example shown in Figure 4.12. At lower floors, the sealant along the perimeter was splitting. Approximately 20,000 linear feet of deteriorating sealant was observed.
- Approximately 100 square feet of traffic-bearing waterproofing membrane was observed to be deteriorated. At these locations, the membrane was worn-through, debonded, or mechanically damaged. Two examples of deteriorated membrane are shown in Figure 4.13 and Figure 4.14.
- At northeast elevator lobby on the fourth floor, the slab and sealant slope down to the storefront. This condition is shown in Figure 4.15.
- Infill grout around the lateral connections for the precast façade panels was observed to be delaminated or spalling at 10 locations on the east elevation. One such location is shown in Figure 4.16.

- Delaminated and spalling concrete was observed on the treads of the stairs in all of the stairwells. The delaminated concrete was generally observed at the edges of the treads as shown in Figure 4.17 or behind the embedded steel tread nosing as shown in Figure 4.18.
- Shear cracks were observed in two of the beams supporting the cross-over above the sixth floor. One these conditions is shown in Figure 4.19.
- A crack in the top of a column on south side of the sixth floor was observed and can be seen in Figure 4.20.
- The storefront in the southeast stairwell was observed to be actively leaking as shown in Figure 4.21. Water was emanating from several locations at the upper floors of the stairwell. It was not clear which part of the storefront system the water was coming from.
- Approximately 10 square feet of spalled concrete was observed in the slab-on-ground. These locations can be tripping hazards.
- Approximately 20 square feet of concrete curb was delaminated or spalled.
- Four loose bollards were observed throughout the structure. One example is shown in Figure 4.22.
- At two locations on the second floor, abandoned anchors in the top surface of the structural slab remain and are protruding above the top slab surface, thereby posing a tripping hazard.
- Paint was observed to be peeling on the interior face of the south CMU wall. One such location is shown in Figure 4.23.
- A parge coat was noted on a fifth floor beam. This parge coat is delaminated, and is shown in Figure 4.24.
- Drains were observed to be in varying condition, including missing grates (Figure 4.25), full of debris and vegetation (Figure 4.26), or having grates that did not sit flush with the top of the drain body (Figure 4.27).
- A pipe guard on the sixth floor is corroding as shown in Figure 4.28.
- Approximately 40 bricks and CMU blocks were cracked. An example of a cracked CMU block is shown in Figure 4.29. Additionally, approximately 400 linear feet of mortar joints were cracked, an example of which is shown in Figure 4.30. The majority of the cracks in the masonry occur at the edges of brick veneer walls, at the joints between the stairwells and the parking deck, or around the commercial space on the ground floor.
- The detention basin was not accessible during the initial assessment of the structure. Access was provided at a later date.

4.2.2. Delamination Survey

As noted above, WJE performed a delamination survey of the top surface of the supported floors to identify locations of delaminated concrete. Only approximately 300 square feet of delaminations was found on the top surface of the supported floors. This represents less than 1% of the supported floor area in the parking structure. Locations of delaminated concrete were generally found above beams, which corresponds to the location of conventional steel reinforcement in the concrete. Additionally, approximately 100 square feet of delaminated concrete was found on both the vertical and the overhead

concrete surfaces. The delaminations on the vertical concrete surfaces were generally observed at column bases. An example of a delamination on a vertical concrete surface is shown in Figure 4.31. The delaminations on the underside of the structural slabs were generally observed at pour strips.

4.3. Further Review of Select Items

Three items observed during the initial assessment required further review to better determine their condition and whether repairs were required: the detention basin, the beams with cored holes through the stirrups, and the beams with the bottom leg of stirrups cut. Site visits for supplemental review of these areas were made on January 28, 2021 and February 2, 2021.

4.3.1. Detention Basin

The detention basin for the Maple Avenue Parking Garage is located below a portion of the ground floor on the north side of the structure, between Column Lines 1, 6, C, and G. The detention basin measures approximately 98 feet by 174 feet. This is the only portion of the structure besides the foundations that continues beneath the ground floor. The floor of the detention basin is a slab-on-ground with no coating. The slab above the detention basin continues the one-way post-tensioned slab supported on post-tensioned PT beam floor system found elsewhere in the structure.

Access was provided to the detention basin on January 28, 2021. A view from inside the detention basin can be seen in Figure 4.32. The detention basin is in good condition. No deterioration of the walls or slab-on-ground was observed. Some cracks were observed with efflorescence and corrosion staining on the underside of the ground floor supported slab. One square foot of delaminated concrete was observed on the underside of the ground floor slab, which appears to coincide with a location of embedded conduit.

4.3.2. Beams with Cored Holes Through Stirrups

Beams with cored holes at the ends were observed throughout the garage as stated above. At many of these locations, the stirrup reinforcing bars were observed to have been cut during the coring process. It does not appear that the beam post-tensioning was cut at any location. As the stirrups provide shear strength to resist a non-ductile failure mode, they are an integral part of the beam. During the repair work performed in 2012 on the Maple Avenue Parking Garage, the beams were reviewed in-depth to determine the capacity of the beams considering the cut stirrups and the hole in the concrete. The capacity was compared to the demands based on the design loading, which includes a 50 pounds per square foot vehicle live load. In current codes, this live load has been reduced to 40 pounds per square foot for passenger vehicle garages. The beam capacity was analyzed considering the higher live load. Based on the analysis, 7 of the 28 beams with core holes were repaired in 2012 with fiber-reinforced polymer (FRP) wraps to provide supplemental strengthening. The FRP wraps appear to be performing well and there was no observed distress at the remaining locations.

4.3.3. Beams with the Bottom Leg of Stirrups Cut

Five beams were observed to have a portion of the bottom of the beams removed to allow for greater vehicular clearance. These five second floor beams are located at the north side of the garage near the north vehicular entrance on the first floor. To increase the clearance beneath these beams, the beams

appear to have been sawcut horizontally, which sliced off the bottom portion of some of the stirrup reinforcing bars at the bottom of the beam. The extent of removal varied by location, with some removal areas being located as close as 18 inches from the face of the supporting column. The amount of reinforcement removed also varied and was estimated to be as much as half of the cross-section of the bottom leg of the stirrup reinforcing bars at some locations. This was estimated based on visual examination of the remaining reinforcement exposed on the underside of the beam. An analysis of the capacity of the concrete and the cut reinforcing in these beams to resist the expected loads was undertaken to determine how much reliance on the capacity of the steel stirrups was required.

WJE performed an analysis to determine the original, i.e. uncut, shear capacity of the beams using the approximate method outlined in Section 22.5.6.2 of the current American Concrete Institute Building Code Requirements for Structural Concrete (ACI 318-19). The beam dimensions and shear reinforcement used in the analysis were based on the original structural drawings. WJE was not provided as-built drawings or shop drawings for the building; however, the shop drawings should not have indicated an as-built condition resulting in lower capacity than that inherent in the beam reinforcing shown in the design drawings. The calculated as-designed capacity was then compared to the load demands based on the design loading, which includes a 50 pounds per square foot live load. Current building codes specify a live load of 40 pounds per square foot for passenger car garages. As such, using the design loading is a conservative approach.

Based on the analysis, the shear capacity of four of the beams is not heavily reliant on the capacity of the steel stirrups, with approximately 30% or less of the original available capacity of the stirrups required to carry the design loads. Since the cross-sectional area of the stirrups remaining is greater than 30% of the original area of the stirrups, these beams have adequate shear capacity. At locations where the amount of cut reinforcement was larger than 30% of the original, WJE reviewed the shear capacity of the beam without stirrups and determined that the beam had adequate shear capacity. At the beam which spans between Columns C1 and C3 on the second floor, the shear capacity is more reliant on the steel stirrups, with one small section where 50% of the original stirrup capacity is required to carry the design loads. WJE reviewed the capacity of this beam considering the remaining cross-sectional area of the stirrups based on field observations and determined that this beam has adequate capacity and does not require supplemental reinforcement.

4.4. Discussion and Recommendations

The Maple Avenue Parking Garage is in reasonably good condition as should be expected from a structure of this age that has a repair and maintenance program. Some items of deterioration were noted during this assessment that, while they currently do not affect the structural integrity of the building, should be addressed to maintain and prolong the garage's service life. These conditions generally relate to water and chloride exposure to the concrete and steel portions of the structure, connections between precast facade elements and the structure, and preventing safety hazards. To extend the service life and maintain the functionality of the garage, a repair and maintenance program should be undertaken.

4.4.1. Concrete Deterioration

The damage to the parapet wall appears to have been caused by vehicular impact, based on the shape of the displaced concrete and the location next to a turn. It is our understanding that the repair of this condition has already been completed by the City or is planned to occur soon.

At the locations of distressed concrete at lateral connections for the precast panels on the north facade on the fifth floor, previous repairs were installed in 2012 at two locations. The third location has cracked since the 2012 repair work. This condition should be repaired in a manner similar to the 2012 repairs. This repair is of high priority as it prevents the facade panel from displacing laterally. The cracks in the concrete at all three locations should be routed and sealed to prevent water and chlorides from penetrating into the concrete and further deteriorating the embedded steel connections. These repairs should be performed within the next year.

The spalled concrete on the face of the beam in the northwest stairwell on the second floor appears to be caused by relative movement between structural elements. To repair the concrete beam, the damaged concrete should be removed, movement joints created to ensure that this condition does not recur, the exposed surfaces blasted clean, and the section recast. Repairing the concrete will restore the bearing support for the CMU wall above and as such is a high priority item. This item should be addressed in the next year.

The extent of concrete delamination detected on the top surface of the supported floors during this survey was less than one percent of the surface area of the deck, and the percentage of overhead deterioration was even less. On the top slab surface, the deterioration appears to be related to corrosion of embedded steel reinforcement. On the slab underside, the concrete deterioration is generally related to locations of moisture penetration through the floor slab, such as leakage that is occurring at pour strips and leaking cracks in the concrete deck. At these locations of moisture penetration, water and chlorides from the deicing salts brought into the garage by vehicles during the winter can penetrate into the concrete and contribute to corrosion of the embedded reinforcing steel. The extent of concrete deterioration is very limited and therefore does not appear to currently affect the load-carrying capacity of the structure or to negatively impact the serviceability of the parking garage. As such, repair of these conditions is of medium priority and should occur within the next five years.

Loose, missing, or efflorescence-stained grout pockets at the post-tensioning tendon end anchors indicate that the post-tensioning tendons may be exposed to water and chlorides, which as previously discussed will lead to corrosion of the steel, section loss of the steel, and a reduced load-carrying capacity. The repair of the grout pockets is fairly simple and involves removing the existing grout, cleaning the exposed concrete, and installing new grout. As the repair of the grout pocket is simpler and cheaper than repairing the post-tensioning tendon or its end anchor, the grout pockets should be repaired prior to deterioration of the end anchor or tendon occurring. These repairs are of medium priority and should be addressed within the next five years.

At the precast connections on the east facade where the infill grout is delaminated and spalling, the load path supporting the precast panels does not appear to have been affected. The infill grout protects the steel elements from exposure to water and chlorides, and should be restored to protect and maintain the

condition of the connections. These repairs are of medium priority and should be performed within the next five years.

At locations of delaminated concrete in the stairwells on the stair treads, the deterioration is a result of corrosion of embedded steel elements and differential shrinkage of the concrete around the embedded steel tread nosing. Corrosion of the embedded tread nosing on the top of the stair treads, embedded steel reinforcement, and embedded railing posts is a result of exposure to moisture and chlorides from deicing salts. The shrinkage cracks result from the concrete portion of the steps contracting over time relative to the embedded tread nosings. The observed distress is not currently affecting the load-carrying capacity of the stairs; however, the delaminated concrete will soon pose tripping hazards. The repair of these locations is similar to those for top surface and column concrete repairs discussed above. As such, these repairs are of medium importance and should be addressed in the next five years.

Spalled concrete in the slab-on-ground and curbs on the ground floor do not pose structural concerns but could deteriorate and become tripping hazards. Accordingly, these repairs are of low priority and should be addressed as they become safety hazards for pedestrians.

At the two locations of shear cracks in the beams at the uppermost cross-over and at the one crack in the top of a column, the extent of cracking does not appear to have affected the load-carrying capacity of the structure, as the width of the crack is minimal and no corrosion staining was evident. The crack pattern suggests that the cracking is restraint-related, but should continue to be monitored during subsequent periodic assessments.

The delaminated parge coat on the face of a beam is not a structural concern. If the parge coating starts to spall, the loose portions should be removed so as not to pose a hazard by falling to areas below. The parge coat need only be replaced if desired for aesthetic concerns.

To restore the serviceability of this garage structure and to extend its service life, the concrete deterioration should be addressed, and the repaired structure should be protected by an effective waterproofing system. This latter item is addressed in the next section.

4.4.2. Waterproofing System Deterioration

The failing or failed sealant at joints throughout the garage appears to be the result of age, displacement, and UV degradation. The typical service life of sealant can be 10 years or more, even in areas with heavy traffic exposure or with sun exposure. The sealant throughout the structure was replaced as part of the 2012 repair project except for the sealant between spandrel walls on the top floor. Based on the expected service life and the condition of the sealant, the sealant should be replaced to protect the structure from the penetration of water and chlorides at any current locations of debonded or deteriorated sealant in the next year. However, the City should anticipate replacing all sealant throughout the garage within the next five years.

Localized portions of the garage floors (over enclosed spaces, over pour strips, and miscellaneous locations) are covered with a traffic-bearing waterproofing membrane system. Areas of debonded, cracked, and worn traffic-bearing waterproofing membrane indicate that those portions of the membrane are approaching or have exceeded their service life. The expected service life for a heavily trafficked membrane is 5 to 10 years. As such, the observed deterioration matches with the expected service life of

the membrane. In conjunction with concrete repairs to the concrete elements of the structure, the waterproofing membrane should be restored to extend the protection of the existing and new concrete. To repair the waterproofing membrane at locations with new concrete or areas with cracked or failed membrane, the substrate should be adequately prepared, and a new full traffic-bearing waterproofing membrane system installed on the horizontal surfaces of the deck and flashed up adjacent vertical surfaces. At areas with worn membrane, the existing membrane can be abrasively blasted, and a new wear course of the membrane system installed over the existing membrane system. Cracks in the concrete substrate will be routed and sealed as part of this repair. These repairs should be performed in conjunction with concrete repairs.

At those locations where no membrane is present, a penetrating silane sealer should be applied to the exposed top surface of the concrete deck. Generally, a surface treated with a penetrating sealer may require re-application of the sealer every 5 to 10 years as necessary to adequately protect the concrete from the penetration of water and chlorides from deicing salts. It is our understanding that silane sealer was applied in 2019. Therefore, sealer should be anticipated to be reapplied in 5 to 10 years.

4.4.3. Miscellaneous Items

The ground floor expansion joint that is improperly detailed and has debonded nosing along its entire length was not replaced during the 2012 repair. The typical service life of an expansion joint seal is 10 to 15 years, so the observed distress is consistent with the age of the seal. This joint seal should be replaced for the entire length of the joint. The other two sections of this expansion joint seal were replaced in 2012. The deterioration at the newer seal is localized and repairs to the expansion joint seal could be confined to deteriorated sections of the seal. However, considering the age of the expansion joint seals, replacing the entire length of the expansion joint seal at one time would be more cost-effective than returning to replace portions of the joint seal at a later time. Additionally, replacing the joint seal in one segment would minimize the need for splices in the joint seal.

Expansion joint seals prevent the edge of the concrete slab and the structure below from being exposed to deterioration-inducing water and chlorides and prevent pedestrians from tripping on joint openings, but do not perform a structural function. As such, this item is of medium priority and should be completed within the next five years.

The cause of the leaking storefront system in the southeast stairwell is unknown as access to the exterior of the stairwell above grade was not available. The water may be infiltrating through the masonry surrounding the storefront system, through the roof above the storefront system, through the joint between the storefront system and the masonry, or through the storefront system itself. Moisture ingress through the storefront system can lead to deterioration of the supports for the storefront system, to deterioration of the anchors for the brick veneer around the stairwell, and to deterioration of the concrete within the stairwell. As such, this condition is of medium priority and should be addressed within the next five years.

At the northeast elevator lobby where the slab and sealant slope down to the storefront system, water is liable to pool. To prevent this and to reduce the ensuing deterioration of the structure from the exposure to water and chlorides, a concrete wash can be installed to direct the water away from the storefront system. No signs of distress were noted at this location; therefore, this repair is of low priority.

The loose or missing bollards are not structural concerns but may affect the traffic flow and the safety of garage patrons. Repair or replacement of these bollards need only occur if necessary for operation of the garage. However, any remaining anchors for bollards no longer present should be removed so as not to pose a tripping hazard.

The corroding pipe guard on the sixth floor should be cleaned and painted to ensure that the guard does not experience corrosion-related section loss resulting in a reduced ability to protect the pipes.

The peeling paint on the CMU wall on the south side of the structure indicates that water is migrating through the wall. The wall does not serve a structural purpose, and the paint on the face of the wall does not provide protection to the wall or structure from the ingress of moisture. Repainting the wall will result in the same condition in the future unless the exterior of the wall can be coated. However, as the building to the south prevents access to the majority of the exterior, coating the outside of the wall is not possible. The peeling paint could be ignored or removed from the interior face to alleviate this condition.

The clogged drains should be cleared out to prevent damage to the pipes from freezing water and to allow for water to clear from the top surface of the slabs. Additionally, missing grates and grates that do not sit flush with the top of the drain pose tripping hazards, and as such should be addressed. These items are of low priority.

The cracked CMU walls, bricks, and mortar joints are indicative of movement in the structure. As portions of the masonry are restrained and movement is induced, the resulting overstress in the mortar, block, or brick creates a crack. These are not structural concerns but can allow water into the structure where exposed to the elements and result in corrosion and deterioration of masonry supports. The cracks in the commercial space do not have this same risk as they are not exposed to the elements. To repair the cracked mortar joints, the existing mortar would be ground out and new mortar placed in lifts to replace the cracked mortar. To repair the cracked CMU, the cracks can be routed, and new mortar placed in the routed joint. Alternatively, the cracked CMU block can be removed, and a new block installed.

4.4.4. Estimate of Probable Repair Costs

A repair program to address the above-mentioned items is warranted within the next five years. To assist the City with planning repairs for this structure, we have developed a projection of the costs associated with the recommended repairs described above. A breakdown of the projected costs for each of the work items and prioritization of the various repair items is provided in Table 4.1 below.

Table 4.1. Estimate of Probable Repair Costs for Maple Avenue Parking Garage

Priority	Repair Item	Estimated Quantity		Unit Cost		Total Cost
High	Delaminated concrete at facade panel to spandrel beam connection	1	Each	\$2,500	/Each	\$2,500
High	Spalled concrete at northwest stairwell beam	1	Each	\$2,500	/Each	\$2,500
Medium	Partial-depth top surface concrete delamination	300	Sq Ft	\$100	/Sq Ft	\$30,000
Medium	Partial-depth vertical concrete repair	100	Sq Ft	\$150	/Sq Ft	\$15,000
Medium	Partial-depth overhead concrete repair	100	Sq Ft	\$150	/Sq Ft	\$15,000
Medium	Expansion joint seal replacement	200	Lin Ft	\$150	/Lin Ft	\$30,000
Medium	PT grout pocket repair	350	Each	\$100	/Each	\$35,000
Medium	Rout and seal cracks	1,500	Lin Ft	\$8	/Lin Ft	\$12,000
Medium	Replace sealant	20,000	Lin Ft	\$5	/Lin Ft	\$100,000
Medium	Repair of traffic-bearing waterproofing membrane	100	Sq Ft	-	-	\$5,000
Medium	Drain grate replacement	2	Each	\$150	/Each	\$300
Medium	Grout repair at precast connections	10	Each	\$500	/Each	\$5,000
Medium	Delaminated stair treads	220	Each	\$150	/Each	\$33,000
Medium	Repair leaking storefront at southwest stairwell	Allowance				\$20,000
Low	Install concrete wash at northeast stairwell on fourth floor	1	Each	\$2,500	/Lin Ft	\$2,500
Low	Slab-on-ground and curb concrete repairs	30	Sq Ft	\$50	/Sq Ft	\$1,500
Low	Replace bollards	Allowance				\$1,500
Low	Remove paint on south CMU wall	1	Each	-	-	\$10,000
Low	Tuck pointing	200	Lin Ft	\$15	/Lin Ft	\$3,000
Low	Replacement of cracked CMU	40	Each	\$100	/Each	\$4,000
Low	Drain grate resetting	30	Each	\$40	/Each	\$1,200
Subtotal						\$329,000
General Conditions (20%)						\$66,000
Engineering (6%)						\$25,000
Total						\$420,000

These costs are based on costs obtained by competitive bidding for similar work performed in the Midwest in recent years. Actual costs may vary due to unique conditions at this site, work hour and phasing restrictions, and other site-specific factors.

Because the corrosion process is ongoing, concrete and steel deterioration will continue if unrepaired and unprotected, and as a result, the quantities projected above will increase with time. Therefore, it should be anticipated that the cost and extent of the repairs will increase if the repair work is postponed for a significant period of time. Additionally, the costs are estimated in 2021 dollars. Some of the high unit costs reflect the small quantity of the repair item. A rehabilitation program designed to address the

deterioration identified by this evaluation can be phased over a number of years in order to allow for the continued use of the parking areas and to address the repairs on the basis of priority.

On-going maintenance items for this parking structure include the removal and replacement of sealant, the repair of traffic-bearing waterproofing membrane, removal and replacement of expansion joint seals, and reapplication of silane sealer. These maintenance items have different anticipated service lives, and as such will need to be addressed at various times in the future. Some of these items should be addressed in the near future, and are included in the table above as a result. The other items are not currently necessary due to recent work, but should be expected to require attention at a future date.

4.5. Figures

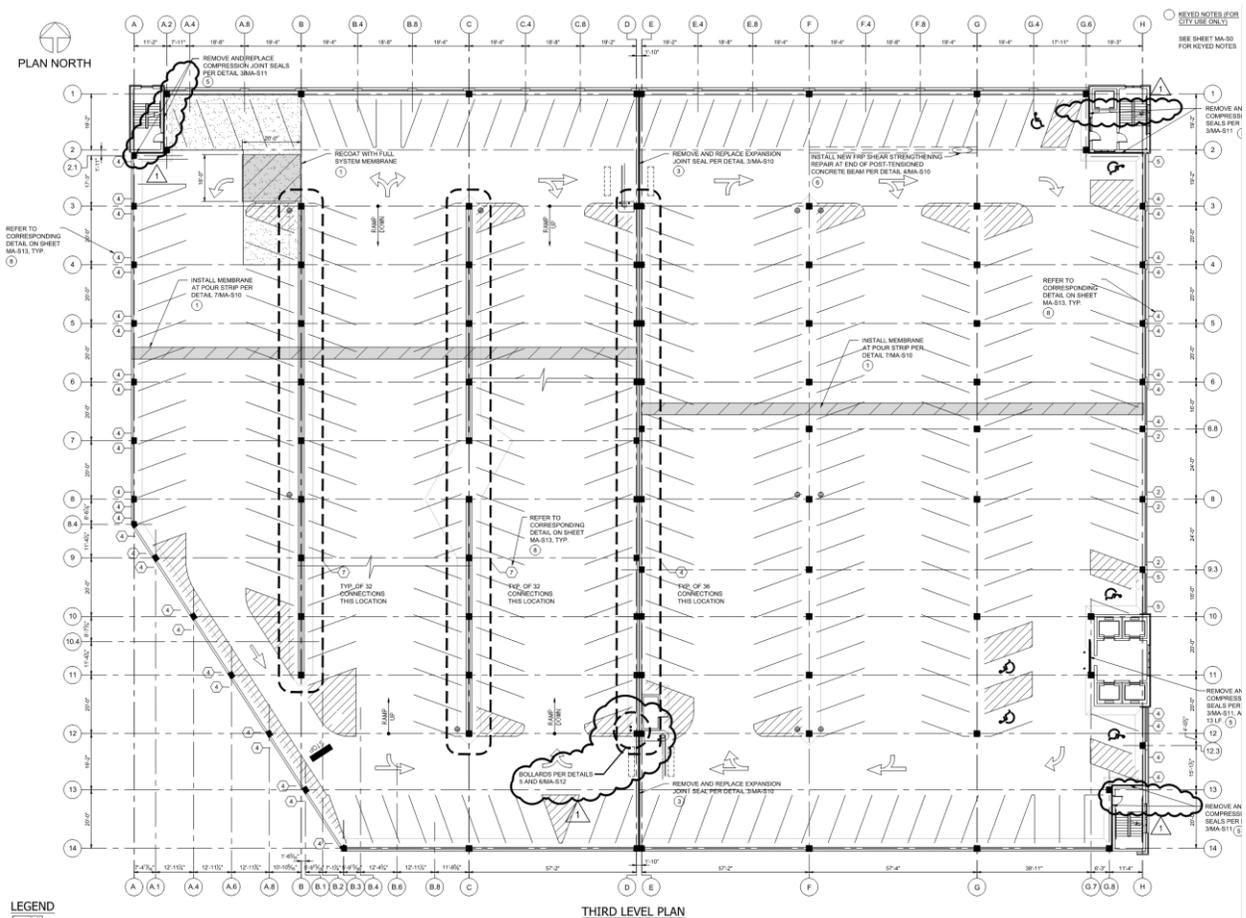


Figure 4.1. Plan View of a typical floor of the Maple Avenue Parking Garage (Third Floor shown)



Figure 4.2. Impact damage to barrier wall



Figure 4.3. Core hole through beam with cut shear reinforcement



Figure 4.4. Core holes through beam with cut shear reinforcement (indicated by red arrow)



Figure 4.5. Reduced section beams with cut shear reinforcement



Figure 4.6. Delaminated concrete at façade panel to spandrel beam connection



Figure 4.7. Spalled concrete requiring repair at west wall of northwest stairway



Figure 4.8. Discontinuity in expansion joint seal due to improper detailing at a change in elevation



Figure 4.9. Damage to expansion joint seal due to sawcutting



Figure 4.10. Post-tensioning tendon grout pockets loose, debonded, requiring repair



Figure 4.11. Post-tensioning tendon stressing pocket missing grout, requiring repair



Figure 4.12. Failed sealed requiring repair



Figure 4.13. Localized failure of traffic-bearing waterproofing membrane



Figure 4.14. Debonding of traffic-bearing waterproofing membrane



Figure 4.15. Top surface of deck and sealant slope down to storefront system at northeast elevator lobby on the fourth floor



Figure 4.16. Delaminated grout at façade panel connections



Figure 4.17. Stair tread - corner delaminated concrete



Figure 4.18. Stair tread - delaminated concrete at nosing



Figure 4.19. Shear cracks in beams



Figure 4.20. Crack at top of column



Figure 4.21. Leaking storefront in southeast stairwell



Figure 4.22. Loose bollards



Figure 4.23. Peeling paint at south CMU infill wall



Figure 4.24. Delaminated parge coat on vertical surface of beam



Figure 4.25. Missing or broken drain grate



Figure 4.26. Vegetative growth and debris at drain



Figure 4.27. Drain grate not flush with top surface of concrete



Figure 4.28. Corrosion of exposed steel barrier/pipe guard



Figure 4.29. Cracked CMU block and displaced brick



Figure 4.30. Cracked mortar joints requiring tuck pointing



Figure 4.31. Cracking and delamination of a column base



Figure 4.32. View of the interior of the detention basin

Parking Garage Structural Assessment

City of Evanston RFP 20-19
Service Center Building D Garage
Evanston, Illinois



5. CHAPTER 5 - SERVICE CENTER BUILDING D GARAGE

5.1. Description of Structure/Background

Service Center Building D is a single-story structure that provides housing for various City of Evanston maintenance divisions, including a covered garage for maintenance vehicles and equipment, and with parking for personnel on the rooftop deck. Original construction documents for Service Center Building D are dated 1980, and the structure has approximate overall dimensions of 377 feet by 153 feet. The structure is composed of three main bays that extend the length of the structure, including the 60 foot wide east and west bays and the 30 foot wide middle bay where the ramp to the roof deck is located at the north end of the structure. The maintenance division garages on the ground level of Building D are accessible from the Service Center yard along the east and west sides through a series of roll-up garage doors. The supported structure is composed of precast concrete, and the roof deck typically consists of prestressed double-tee beams with a cast-in-place topping. The double-tee beams span east-to-west across the bays and are supported by prestressed concrete ledger beams, spandrel beams, and columns along the north-south column lines. The building exterior consists of precast facade panels spanning between exterior columns and CMU or brick masonry walls, and the ground floor consists of a concrete slab-on-grade.

WJE was previously involved with inspection and repair operations at the Service Center Building D Garage after concrete spalling in 2017 was reported to have structurally compromised the support of several precast concrete double-tee roof beams. Those failures were determined to primarily be the result of poor placement of reinforcing steel in the roof structure's precast concrete girder ledges. As a result of the 2017 inspections, repairs to the roof deck support structure were implemented in 2018 for failed concrete and for concrete determined to be at risk of failure due to poor placement of reinforcement steel. Concrete deck repairs were also performed where infiltration of chloride-laden water led to corrosion of the reinforcing steel, resulting in local delamination of the concrete. In addition, the joint sealant and waterproofing membrane on the rooftop parking deck was repaired, and the expansion joint seal in the rooftop parking deck was replaced in order to prevent further water infiltration. A plan view of the rooftop parking deck from the 2018 repair project is presented in Figure 5.1. WJE was also on site in June 2020 to review reports of additional concrete spalling and leaking in the portion of the structure occupied by the Forestry Division. Our findings and recommendations from this site visit were summarized in a letter to the City dated July 13, 2020.

5.2. Field Assessment

WJE was on-site to perform a survey of the structure on August 6, 2020. A visual survey was performed, which included observation of the top surface and underside of the roof deck, as well as review of the interior and the perimeter of the structure. In addition, a delamination survey was performed on the top surface of the rooftop parking deck, and select vertical and overhead concrete surfaces were sounded. WJE was also on site on October 29, 2020, to review reported leaking in the structure.

5.2.1. Visual Survey

A visual survey of the exposed surfaces of the garage structure was performed in all accessible areas. Notable observations are as follows:

- Up to about 1-1/2 inches of movement was noted in the CMU partition wall above the inner doorway of the electrical room near Column C/D2, as shown in Figure 5.2.
- Up to about 1 inch of movement was noted in the east CMU partition wall of the vestibule between Column A/D8 and Column A/D9, as shown in Figure 5.3.
- One face shell was observed to have failed in the CMU partition wall near Column F/D15, as shown in Figure 5.4.
- At the top of the ramp and at the turns at the north and south ends of the rooftop parking deck, aggregate in the top coat of the waterproofing membrane was observed to have worn off or pulled out, and full membrane failure was observed at intermittent locations at concrete joints, as shown in Figure 5.5 and Figure 5.6.
- Masonry brick cracking, sealant debonding, and efflorescence was observed on the exterior facade at the north end of the structure near base of the ramp, as shown in Figure 5.7 and Figure 5.8.
- Some CMU cracking and mortar joint deterioration and cracking was noted in the exterior wall around and near the stairwell, as shown in Figure 5.9 and Figure 5.10.
- The ground level floor drain at the east end of Bay D5-D6 was observed to be clogged, as shown in Figure 5.11.
- Four floor drains throughout the site were observed with missing drain grates.
- Sealant debonding was observed on two CMU partition walls in the electrical room.
- Apparent failure of the waterproofing membrane and joint sealant was identified in the west bay of the structure along Column Line D6 during WJE's October 2020 site visit.

5.2.2. Delamination Survey

As noted above, WJE performed a delamination survey of the top surface of the rooftop parking deck via chain drag to identify locations of delaminated concrete, as well as a delamination survey of vertical and overhead surfaces in select accessible locations via hammer tapping. As the deck had been recently repaired in 2018, only approximately 3 square feet of delaminated concrete was found on the top surface of the rooftop parking deck. Several column bases were noted to have delaminated concrete, an example of which is shown in Figure 5.12, and a few precast spandrel panels have minor spalls, with an example provided in Figure 5.13. Overall, approximately 15 square feet of spalls and delaminations were identified on vertical concrete surfaces. Approximately 40 square feet of possible overhead delaminations were identified on the underside of the rooftop parking deck, though some of these locations may have been previously evaluated up-close during the recent repair project and deemed acceptable. These quantities include the damage and deterioration noted in WJE's July 2020 letter report, which appeared unchanged since the June 2020 inspection, and are as shown in Figure 5.14 and Figure 5.15.

5.3. Discussion and Recommendations

Service Center Building D Garage is in good condition, as should be expected given its recent repair project in 2018. The most notable finding was the shifting of the CMU partition wall in three locations, which could pose a safety issue if the affected units continue to move until they dislodge and fall to the ground. It is our understanding that the City may have already taken action to address some of these conditions. The other deterioration items noted do not affect the structural integrity of the building, but should be monitored until addressed by a future repair program.

The spalls and delaminations observed on the top surface and underside of the rooftop parking deck represent a very small proportion of the overall footprint. As noted in our July 2020 letter, the overhead concrete spall reported in June 2020 may have been the result of water intrusion allowed by the apparent vehicle strike in the top of the wall at Column E/D7 that enable water to locally circumvent the waterproofing membrane flashing. As noted above, some of the other overhead areas identified visually may have been determined to be structurally sound during the recent repair project when they could be directly assessed with hammer tapping, as the reinforcing steel mesh in the double-tee flanges can produce corrosion staining without producing enough corrosion by-products to delaminate the concrete cover.

The condition of the waterproofing membrane should continue to be monitored. The membrane is particularly susceptible to wear at locations where vehicular traffic changes direction and speed, such as at the top of the ramp and at turns. Membrane wear was also observed along a topping slab repair joint where minor changes in elevation are present. Under normal conditions, recoating of the waterproofing membrane should be anticipated to be needed every five to ten years to extend the life of the overall waterproofing system.

The facade deterioration items noted above likely existed prior to the 2018 repairs, as the focus of that project was restoration of critical structural deficiencies. While the facade items do not pose any structural concern, they should be addressed in order to prevent water intrusion and to improve overall appearance.

The clogged drain should be cleared out to prevent damage to the pipes from freezing water and to allow for water to clear from the surrounding area. Additionally, missing grates and grates that do not sit flush with the top of the drain pose tripping hazards should be addressed. These items are of low priority.

Given the overall good condition of the Service Center Building D Garage, we do not foresee the need to undertake a repair project within the next five years. In order to provide a sense of relative structural condition, though, we have provided a breakdown of the projected costs for the identified items and prioritization of these repair and maintenance items in Table 5.1.

Table 5.1. Estimate of Probable Repair Costs for Service Center Building D Garage

Priority	Repair Item	Estimated Quantity		Unit Cost		Total Cost
Medium	Repair CMU partition walls	3	Each	\$1,500	/Each	\$4,500
Low	Partial-depth top surface concrete delamination	5	Sq Ft	\$100	/Sq Ft	\$500
Low	Partial-depth vertical concrete repair	15	Sq Ft	\$150	/Sq Ft	\$2,250
Low	Partial-depth overhead concrete repair	40	Sq Ft	\$150	/Sq Ft	\$6,000
Low	Brick and CMU facade repairs	1	Each	-	-	\$6,000
Low	Replace sealant	50	Lin Ft	\$10	/Lin Ft	\$500
Low	Repair of traffic-bearing waterproofing membrane	25	Sq Ft	-	-	\$2,500
Low	Clogged drain cleanout	1	Each	\$350	/Each	\$350
Low	Drain grate replacement	4	Each	\$100	/Each	\$400
Subtotal						\$23,000
General Conditions (20%)						\$5,000
Engineering (15%)						\$4,000
Total						\$32,000

These costs are based on costs obtained by competitive bidding for similar work performed in the Midwest in recent years. Actual costs may vary due to unique conditions at this site, work hour and phasing restrictions, and other site-specific factors.

Because the corrosion process is ongoing, concrete and steel deterioration will continue if unrepaired and unprotected, and as a result, the quantities projected above will increase with time. Therefore, it should be anticipated that the cost and extent of the repairs will increase if the repair work is postponed for a significant period of time. Additionally, the costs are estimated in 2021 dollars. Some of the high unit costs reflect the small quantity of the repair item.

5.4. Figures

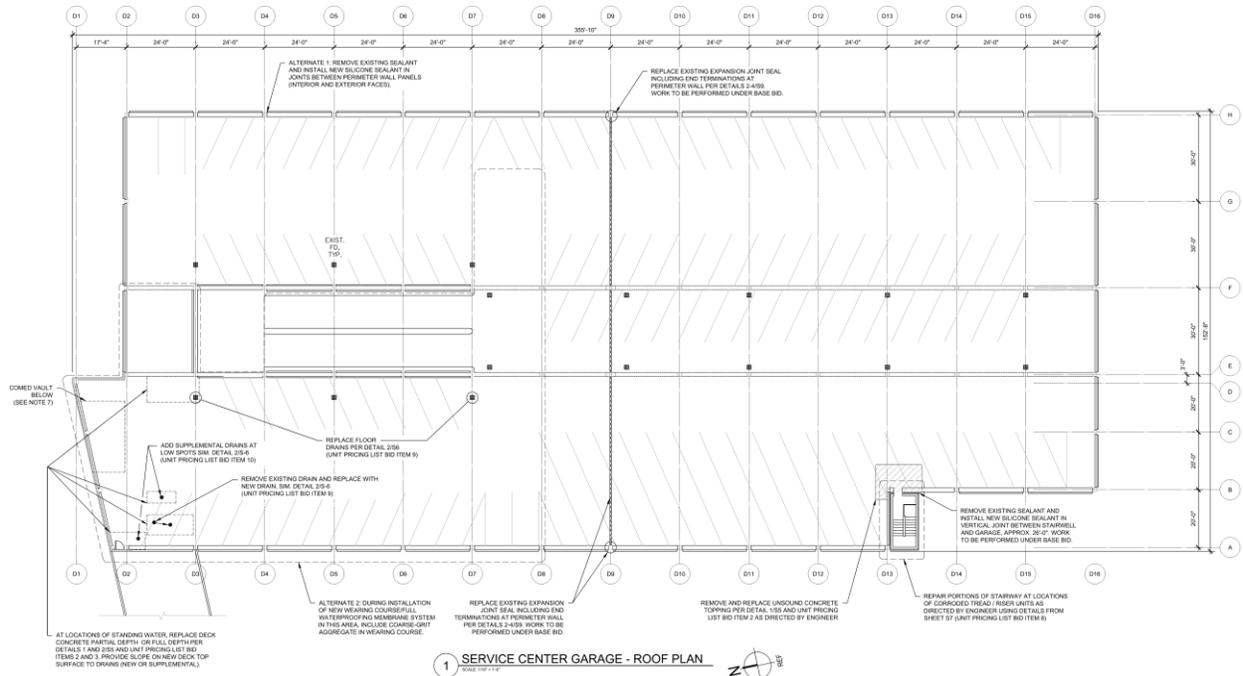


Figure 5.1. Service Center Building D Garage roof plan reproduced from the 2018 repair project drawings.



Figure 5.2. Shifting of the top three courses of the CMU partition wall over the interior door of the Electrical Room near Column C/D2.



Figure 5.3. Shifting of the top three courses of the CMU at the east partition wall of the vestibule between Column A/D8 and Column A/D9.

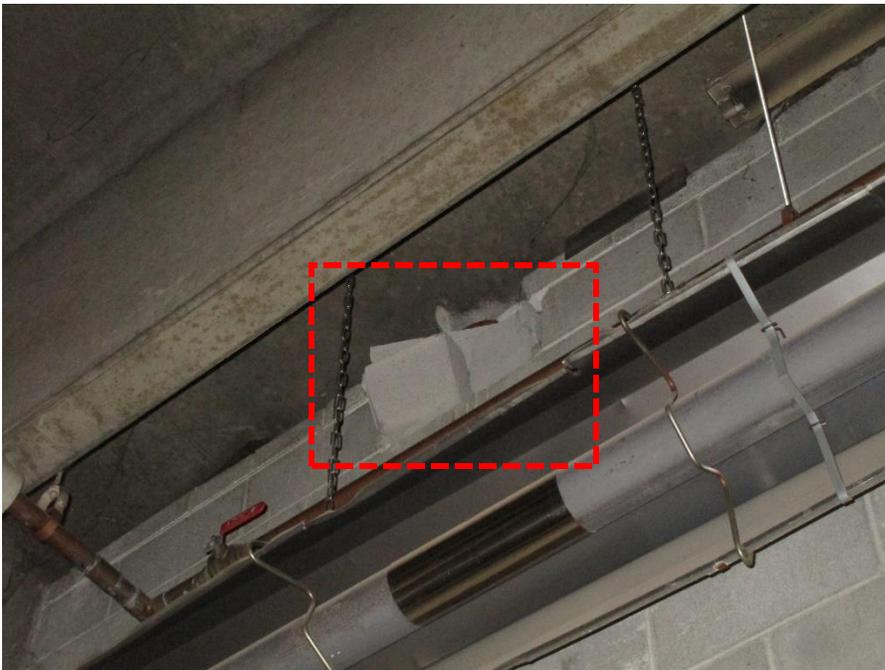


Figure 5.4. Face shell failure (highlighted in red box) in CMU partition wall near Column F/15.



Figure 5.5. Overall condition of the waterproofing membrane on the rooftop parking deck at the top of the ramp. A close-up view of the red box region is shown in Figure 5.6.



Figure 5.6. Close-up view of the waterproofing membrane on the rooftop parking deck at a joint in the deck topping near the top of the ramp.



Figure 5.7. Cracking in the clay brick facade and sealant debonding at the north exterior over the base of the ramp.

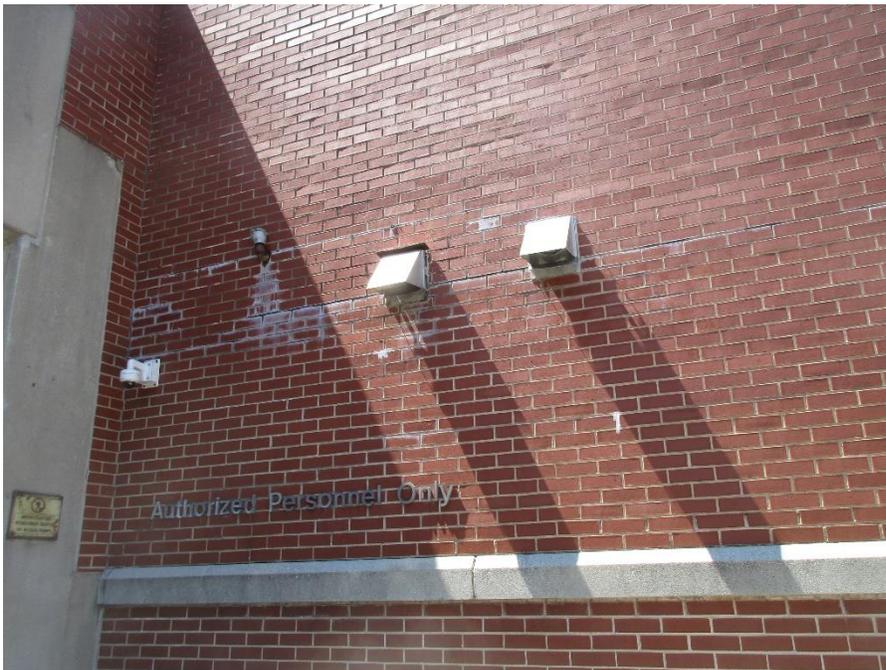


Figure 5.8. Efflorescence through the joints of the brick masonry facade adjacent to the base of the ramp on the north exterior of the structure.



Figure 5.9. CMU and mortar joint cracking in the exterior wall adjacent to the southwest stairwell.



Figure 5.10. Mortar joint cracking and deterioration in the exterior wall of the southwest stairwell.



Figure 5.11. Clogged floor drain with sitting water at the east end of Bay D5-D6.



Figure 5.12. Typical example of column base spalling at Column H/D16.



Figure 5.13. Spall on exterior of spandrel panel near Column H/D11.



Figure 5.14. Overhead spall at Column E/D7, which appeared unchanged since WJE's inspection in June 2020.



Figure 5.15. Spall in wall at the top of the ramp at Column E/D7, which appeared unchanged since WJE's inspection in June 2020.

Parking Garage Structural Assessment

City of Evanston RFP 20-19
Sherman Plaza Parking Garage
Evanston, Illinois



6. CHAPTER 6 - SHERMAN PLAZA PARKING GARAGE

6.1. Description of Structure/Background

The Sherman Plaza Parking Garage is a twelve-story post-tensioned concrete structure that services the adjacent Sherman Plaza residential and commercial building. Original design drawings are dated to December 2004, and construction was completed in 2006, indicating that the structure is approximately 15 years old. In plan, the structure is approximately rectangular, with overall dimensions of approximately 280 feet by 170 feet. The structure is bordered by Davis Street to the south, a service alley to the north, Benson Avenue to the west, and the remainder of the Sherman Plaza development to the east.

The supported floors consist of one-way post-tensioned concrete floor slabs spanning in a north-south direction between post-tensioned concrete beams. The beams are in turn supported by reinforced concrete columns, which divide the structure into three separate bays that extend the length of the structure north-to-south. While the West Bay is essentially flat, the Middle and East Bays are sloped in opposite directions to form a double helix in order to provide for vehicular traffic between floors. The ground floor is mostly a slab-on-ground with a portion in the southwest corner being a supported slab over a detention basin. A partial floor is located above the twelfth floor to provide a cross-over between the two ramped bays. The garage has a precast concrete facade with aluminum infill panels supported on the perimeter beams and columns. The garage is serviced by elevator banks at the southwest and northeast corners, as well as by stairwells in the northeast and southeast corners. A plan view of a typical supported floor is presented in Figure 6.1.

WJE investigated this parking structure in 2011 and determined that this structure was in generally fair condition with some repairs recommended. Repairs were performed in 2011 and consisted of repairing delaminated concrete, repairing and retrofitting facade panel supports, routing and sealing cracks, and repairing portions of the existing traffic-bearing waterproofing membrane system.

6.2. Field Assessment

WJE was on-site to perform visual and delamination surveys of the structure on August 17 and August 19, 2020. The visual survey included observation of the underside of the supported floors, as well as the exposed top and vertical surfaces of the structure, and observation of the perimeter facade of the parking structure. A delamination survey of the top surface of the supported floors was also performed.

6.2.1. Visual Survey

A visual survey of the exposed surfaces of the parking structure was performed in all accessible areas. Notable observations are as follows:

- Distributed cracking was observed on the top and bottom surfaces of the rooftop deck (Level 12), an example of which is provided in Figure 6.2), with most of the top surface cracks already sealed. Through-cracking was observed in the northeast corner of the Level 12 slab, with a view of the underside cracking presented in Figure 6.3. Cracking and corrosion staining was also observed on the bottom of Beam PP/P7-P10, as shown in Figure 6.4.

- Unusual cracking was observed at the west end of the post-tensioned roof beam supporting the rooftop cross-over where it frames into Column PH/P7, as shown in Figure 6.5.
- Column cracking was observed at 11 beam/column junctions throughout the garage, with an example provided in Figure 6.6.
- Loose or water-stained grout pockets were observed throughout the garage and were pronounced at 11 locations, one of which is shown in Figure 6.7.
- The facade panel vertical support on Level 5 at Column PD/P1 was observed to be missing a shim plate, and thus is ineffective (see Figure 6.8).
- Six facade panel bearing connections were observed to feature flame-cut bearing plates that resulted in either point-bearing (see Figure 6.9) or edge bearing (see Figure 6.10) support conditions.
- The facade panel bearing plate at Column PQ/P1 of Level 11 was observed to have been flame-cut to less than half of its original height, as shown in Figure 6.11.
- Significant movement of shims beneath two facade panel bearing connectors was observed, as shown in Figure 6.12 and Figure 6.13.
- A failed traffic barrier cable was observed near Column PJ/P7 on Level 6, which is shown in Figure 6.14.
- Approximately 5 feet of the top course of the CMU partition wall adjacent to the Davis Street exit ramp was observed to be dislodged and cracked, posing a falling debris hazard (see Figure 6.15).
- One stair tread near the ground level of the southeast stairwell has failed (see Figure 6.16) and deflects noticeably underfoot when stepped on.
- A sliding deadbolt was observed on the exterior side of the vestibule doors leading to the northeast elevator bank on Level 12, as shown in Figure 6.17.
- Exposed or poorly protected post-tensioning tendon sheathing was observed on the top surface of the deck at three locations in the garage, with an example provided in Figure 6.18.
- Approximately 500 feet of leaking joints were observed throughout the structure at construction joints, pour strips, and around the construction crane box-out. An example of a leaking joint is presented in Figure 6.19.
- Paint peeling on the overhead surfaces was noted at various locations throughout the garage, particularly on the undersides of Level 3 through Level 7. Examples of peeling paint are presented in Figure 6.19, Figure 6.20, and Figure 6.21.
- Cracking in the facade panel concrete was observed at thirteen locations, with crack widths varying from 0.005 to 0.025 inches. An example of one wider crack is shown in Figure 6.22.
- Worn and failed sealant was observed typically in the tops of the facade panels along the south, west, and east perimeter of Level 12 (see example in Figure 6.23).
- The waterproofing membrane in the Middle Bay ramping up from Level 2 to Level 3 between Column Line PD and Column Line PK was observed to have a worn top coat, with some regions worn through to the concrete deck, an example of which is shown in Figure 6.24. The drive lane

region of the ramp immediately before and after this region was observed to have a newer top coat in good condition, as shown in Figure 6.25.

- The waterproofing membrane on the entrance and exit ramp at Davis Street was observed to be worn through to the concrete. A view of the entrance ramp is provided in Figure 6.26, and a view of the exit ramp is provided in Figure 6.27.
- Moderate corrosion was observed on the drain pipe passing through the Level 7 slab near Column PN/P7, as shown in Figure 6.28. One drain grate near Column PC/P4 on Level 10 was observed to be significantly corroded, as shown in Figure 6.29.
- Evidence of relative movement between CMU infill walls and the concrete structural frame was observed in approximately nine locations around Level 3 and Level 4, including wall cracking or opening joints. An example of the CMU cracking is presented in Figure 6.30.
- Curb cracking extends through one set of bollard anchor bolts in the East Bay of the structure near the ticket spitters for the Davis Street entrance.
- Freeze-thaw damage was observed on the concrete encasement over the steel base plate for a Level 12 column of the northeast stair vestibule structure, as shown in Figure 6.31.
- Uniformly-spaced vertical cracking was observed in the edge wall adjacent to the exit ramp down to Davis Street, as shown in Figure 6.32.
- Tread and landing wear was noted between ground level and Level 3 in the northeast stairwell, and between ground level and Level 6 in the southeast stairwell.
- One location of loose barrier fencing was observed on Level 5 near Column PG/P7.

6.2.2. Delamination Survey

As noted above, WJE performed a delamination survey of the top surface of the supported floors to identify locations of delaminated concrete. The top surface survey focused on the deck over the post-tensioned beams since the one-way construction means that reinforcing steel near the top surface would be concentrated in these regions. Locations of delaminated concrete were typically found on the exposed regions of Level 12 and the adjacent cross-over between ramped bays. Approximately 50 square feet of delaminations were found on the top surface of the supported floors, representing far less than 1% of the supported floor area in the parking structure. Additionally, only approximately 20 square feet of delaminated concrete was found on both the vertical and the overhead concrete surfaces. An example of a delamination on an overhead concrete surface is shown in Figure 6.33. In addition, approximately 15 square feet of concrete delamination and spalling was found on the slab-on-ground of the ground floor.

6.3. Further Review of Select Items

After conducting the initial assessment, WJE recommended further review of the Sherman Plaza Parking Garage to perform an inspection at the confined space of the detention basin, to perform a structural review of the observed facade panel conditions, and to further evaluate the post-tensioning tendons of two beams with cracking and corrosion staining by making inspection openings to evaluate the tendon condition. Site visits for the supplemental inspection and review were made between January 8 and January 28, 2021.

6.3.1. Detention Basin

The detention basin for the Sherman Plaza Parking Garage is located at the southwest corner of the structure, below a portion of the Davis Street entrance and exit ramps and the ground floor commercial space, in the area bounded by Column Lines P2, P7, PA, and PF. The detention basin roughly measures 100 feet by 94 feet in plan. This is the only portion of the structure besides the foundations that continues beneath the ground floor. The floor of the detention basin is a slab-on-ground, and the floor and part of the vertical surfaces inside the detention basin have a waterproofing liner.

Access to the detention basin was provided on January 28, 2021. A view from inside the detention basin is presented in Figure 6.34. The detention basin is in good condition. No deterioration of the walls, columns, or slab-on-ground was observed. Several cracks with efflorescence were noted on the underside of the ground floor supported slab, though no corrosion staining was observed. The cracks typically extended from the perimeter of the detention basin an approximate distance of between 15 feet to 30 feet. One location of approximately five square feet of delaminated concrete was observed on the underside of the ramp slab, though it does not appear to have been caused by concrete deterioration, rather coinciding with a location of embedded electrical conduit (see Figure 6.35). The waterproofing liner on the slab-on-grade was observed to have debonded from the floor slab beneath two drains from the structure above, affecting approximately 200 square feet of the liner near Column PC/P7 (see Figure 6.36) and 10 square feet near Column PC/P4 (see Figure 6.37).

6.3.2. Structural Review of Concrete Facade

Several facade panel supports were noted with possible deficiencies, and WJE performed further review to assess any structure hazards these atypical conditions may pose.

The facade panel vertical support on Level 5 Column PD/P1 was observed to be ineffective since there is no bearing between the connectors on the facade and column (see Figure 6.8). According to the original facade drawings, this panel has two vertical supports, as noted in Figure 6.38. Based on the geometry of the facade panel, the weight of the piece was calculated to be approximately 10,500 pounds. The two vertical supports are positioned such that each would take approximately half of the total weight of the facade piece under design conditions, but the remaining connector must now carry the full weight of the piece. The detail for the remaining connector, type G3A, is presented in Figure 6.39, and it calls out a Meadow Burke Rapid-Lok C30K-8.5 embedment into the supporting column. Though we could not locate product information for this specific connector, the naming convention employed by Meadow Burke products available today suggests that this connector has a working strength of 30 kips. On that basis, the remaining connection has sufficient capacity to support the vertical load from the affected panel piece.

However, due to the eccentricity of the support, the piece requires supplemental lateral support to prevent it from rotating out of place. Looking at the shape of the panel piece, it is likely that the concrete portions that extend above and below the adjacent opening in the facade can effectively act as shear keys to resist lateral loading. The eccentricity of the vertical support and the height of the facade opening means that a lateral force of approximately 600 pounds is required at the top and bottom portions of the piece to resist the rotation of this facade panel. This induces a shear stress of approximately 5 pounds per square inch (psi) in the facade panel regions that must act as a shear key. The nominal shear strength of

the facade is conservatively estimated at 110 psi, assuming a concrete compressive strength of 3,000 psi, and thus sufficient restraint against panel rotation can be adequately provided. Based on these findings, this facade panel is stable in its current condition, but proper bearing should be restored at the connection with the missing shims.

Some of the plates for the facade panel bearing connections were observed to have been field cut, which reduces the strength of the plates and increases flexural demand. Flexural demand also could increase further if the geometry of the cuts resulted in bearing only at the ends of the plates. The bearing plate at Column PQ/P1 of Level 11 (shown in Figure 6.11) was discovered to have the most significant increase in stresses due to flexural demand, as it was cut to a height of 3-1/4 inches, though this plate fortunately appeared to be bearing along its full length. In an uncut condition with full bearing, maximum flexural stress in this bearing plate would be approximately 2.8 kips per square inch (ksi), while in its current cut condition the maximum flexural stress is approximately 16.9 ksi. The steel plate likely has a yield strength of at least 36 ksi, and 60 percent of yield strength is an appropriate allowable stress for this plate, or 21.6 ksi. As such, the flexural stress in this plate is less than the allowable stress. Therefore, the maximum flexural stress of all bearing plates was determined to be acceptable, though elevated where cut. However, because of the roughness of the flame-cut surface, there is likely a stress riser in the plate at this location, so this connection should be monitored for evidence of distress.

After review of the original facade drawings, it was determined that all cracking observed in the facade panels is located immediately beneath vertical supports for the panel pieces. As such, it should be expected that the concrete beneath these connections are in tension, and the cracking indicates that the embedded reinforcement is carrying the weight of the suspended facade panels up to the supports. While the crack openings of 0.005 to 0.0025 inches are not excessive, they do provide locations for water ingress that could potentially lead to corrosion of the supporting steel.

6.3.3. Review of Isolated Beam Cracking

In post-tensioned concrete construction, steel strands in the beams and slab are typically placed and stressed to such a level to prevent cracking of the structure under the anticipated load demands. The visual inspection of the Sherman Plaza Parking Garage structure identified two beams with unusual cracking: Beams PJ/P7-P10 and PP/P7-P10 at Level 12. WJE recommended that the condition of their embedded post-tensioning tendons be directly assessed by making inspection openings in the concrete on the underside of the beams. The inspection openings and strand evaluations were performed on January 8, 2021. Concrete patching operations to restore the beams at these two openings were delayed until this spring and the return of warmer weather sufficient for patching.

Ten post-tensioning strands were exposed at the inspection opening at midspan of Beam PJ/P7-P10, as shown in Figure 6.40. The sheathing of all strands appeared to be in good condition, showing no signs of damage or leaking. The adjacent conventional reinforcing steel was also in good condition, showing no signs of corrosion. Nine of the ten strands had sufficient access to allow for cutting into the sheathing, and the steel and grease inside the sheathing showed no signs of corrosion at these locations. All strands appeared to be under tension according to the screwdriver penetration test that was performed.

Nine post-tensioning strands were exposed at the inspection opening made at midspan of Beam PP/P7-P10, as shown in Figure 6.41. The sheathing of all strands appeared to be in good condition, showing no

signs of damage or leaking. The adjacent conventional reinforcing steel was also in good condition, showing no signs of corrosion. All of the strands had sufficient access to allow for cutting into the sheathing, and the steel and grease inside the sheathing showed no signs of corrosion. All strands appeared to be under tension according to the screwdriver penetration test that was performed.

6.4. Discussion and Recommendations

The Sherman Plaza Parking Garage is in good condition, as should be expected from a structure of this age with the City's repair and maintenance program. Some items of deterioration were noted during the assessment that, while they currently do not affect the structural integrity of the building, should be addressed to maintain the good condition of the structure and to extend its service life. These conditions generally relate to water and chloride exposure of the concrete and steel portions of the structure, to the drainage system servicing the structure, and to preventing safety hazards. To extend the service life and to maintain the functionality of the garage, a repair and maintenance program should be undertaken.

6.4.1. Concrete Deterioration

The extent of concrete delamination detected on the top surface of the supported floors during this survey was significantly less than one percent of the surface area of the deck, and the percentage of overhead deterioration was even less. On the top slab surface, the majority of the deterioration that was identified seems to be related to the deck cracking observed on the exposed portions of the Level 12 and rooftop crossover. On the slab underside, the concrete deterioration was so isolated that no meaningful trend could be identified.

Although not causing significant deterioration yet, the cracks in the top levels and leaks in the deck construction joints pose a long-term risk to the concrete structure. At these locations of moisture penetration, water and chlorides from the deicing salts brought into the garage by vehicles during the winter can penetrate into the concrete and contribute to corrosion of the embedded reinforcing steel. The current extent of concrete deterioration is very limited, and as such does not appear to currently affect the load-carrying capacity of the structure or to negatively impact the serviceability of the parking garage. As a result, addressing these conditions is of medium priority and should occur within the next five years. While only about 500 linear feet of visibly failed or leaking joints were identified, sealant in all cracks and joints (approximately 8,000 linear feet) should be periodically replaced as part of ongoing maintenance, as the sealant ages or debonds over time.

The loose or moisture-stained grout pockets at the end anchors for the post-tensioning tendons indicate that the anchors are being exposed to water and chlorides, which as previously discussed will lead to corrosion of the steel, section loss of the steel, and reduced load-carrying capacity. The repair of the grout pockets is fairly simple and involves removing the existing grout, cleaning the exposed concrete and steel surfaces, and installing new grout. As the repair of the grout pocket is simpler and cheaper than repairing the tendon anchor, the grout pockets should be repaired prior to deterioration of the end anchor occurring. These repairs are of medium priority and should be addressed within the next five years.

Spalled concrete in the slab-on-ground and curbs do not pose structural concerns but could deteriorate into tripping hazards. Accordingly, these repairs are of low priority and should be addressed as they become safety hazards for pedestrians.

To restore the serviceability of this garage structure and to extend its service life, the concrete deterioration should be addressed, and the repaired structure should be protected by an effective waterproofing system. The protection of the structure is addressed in the next section.

6.4.2. Traffic-Bearing Waterproofing Membrane Deterioration

Waterproofing membrane is present throughout Level 2, to the top of the ramped portion of the garage floor up to Level 3, and over about 15 percent of the exposed deck at the garage rooftop. For the most part, the waterproofing membrane, where installed, was observed to be in good condition. Areas of debonded, cracked, and worn traffic-bearing waterproofing membrane provide an avenue for water and chloride penetration into the concrete slab and into the space below. This combination will lead to deterioration of the concrete over time, and this condition should be remedied to ensure the integrity of the structure. In conjunction with concrete repairs to the concrete elements of the structure, the waterproofing membrane should be repaired to protect the existing and new concrete. Membrane repair should be performed at the base of the Davis Street entrance and exit ramps, as well as on the Middle Bay slab where it ramps from Level 2 to Level 3 as needed. A new top coat should be placed on the portion of the Middle Bay between Level 2 and Level 3 that did not receive a new top coat during the most recent membrane repair. Finally, we recommend installing a new waterproofing membrane over the remainder of the uncoated portion of the exposed top level of the structure due to the extensive cracking observed and the ability of a membrane to provide protection against future moisture penetration.

6.4.3. Miscellaneous Items

The sliding deadbolt installed on the exterior of the doors to the northeast elevator bank vestibule poses a life safety concern as it may prevent egress from the elevator bank in an emergency. This should be removed as a high priority item.

While no failures of the post-tensioning tendons were observed in the inspection openings at two roof beams, the cause of the cracking could not be determined. The degree of cracking observed in these regions partly informed the recommendation to replace crack sealant throughout the garage and to provide a waterproofing membrane over the entire exposed roof level in order to reduce the consequences of the cracking. Meanwhile, these regions should continue to be monitored for any increases in crack size or amount of cracking.

The three locations where sheathing for a post-tensioning tendon was observed on the top surface of the deck should similarly be protected, possibly with the localized application of waterproofing membrane over them to prevent water ingress into the sheathing.

The facade panel bearing connections were found to be adequate to resist their demands as-is, but several connections are experiencing significantly greater stress than the original design considered. Specific repairs should include installation of bearing shims at the bearing connection at Column PD/P1 on Level 5 where there is currently no bearing, and the shims at other supports should be adjusted, replaced, or repositioned as necessary to ensure full bearing along the entire length of the connections.

The worn and failed sealant along the top of the facade should also be replaced, and the cracks in the facade panels should be routed and sealed to prevent water ingress. This is a medium priority repair recommendation.

Additional medium priority repairs also include replacing the failed traffic barrier cable anchored at Column PJ/P7 on Level 6, replacing the failed stair tread in the southeast stairwell, and repairing the CMU wall adjacent to the Davis Street exit ramp.

The traffic-bearing waterproofing membrane is present only on Level 2 extending up to the top of the ramp to Level 3, as well as at a select portion of the rooftop deck. In order to reduce the risk of corrosion initiation, additional waterproofing methods should be applied throughout the remaining regions of the garage exposed to vehicular traffic. While on site, observations suggested that a sealer may have been recently applied to the remainder of the deck. Reapplication of a sealer is generally recommended every five to ten years as warranted to adequately protect the concrete against additional penetration of water and chlorides.

Two low-priority repair items were noted of the floor drainage system, including a drain pipe with moderate corrosion beneath Level 7 and a corroded drain grate on Level 10.

Minor deterioration of nonstructural CMU walls were observed throughout the garage, including CMU wall cracking and opening of the wall mortar joints. The repair of these conditions in the CMU walls should be treated as low priority items.

The loose barrier fencing near Column PG/P7 on Level 5 should be repaired as a low priority item, and can likely be secured by City maintenance personnel.

A few items identified in the garage inspection do not require direct action to be taken at this time, but should be monitored for significant changes of condition. The loose liner on the slab-on-ground in the detention basin has not caused any notable deterioration, and any deterioration that may develop would occur in concrete with low impact on overall structural performance. The vertical cracking on the west wall of the Davis Street exit ramp is regularly spaced and does not seem to pose any structural concern, but should be monitored for any potential changes in size or amount of cracking. Alternately, these cracks could be covered with a protective coating that can bridge cracks, or routed and sealed as part of the deck sealant recommendation made above. The coatings on the treads and landings at the lower levels of the stairs have worn through, but there does not appear to be any significant section loss at this time. This coating should be replaced if increased corrosion is noted, or if the City desires to improve the stair's appearance. The freeze-thaw damage on the concrete encasement of the Level 12 vestibule column base does not show signs of corrosion staining underneath, and any replacement encasement may quickly meet with a similar fate since there is nothing across the steel-concrete interface to keep the concrete bonded. Alternatively, the encasement could be removed and a new coating applied to the steel. Finally, the paint observed to be peeling throughout the garage does not provide a meaningful waterproofing benefit to the structure, although it can brighten the interior of the structure. As a result, it can be recoated at the City's discretion as a cosmetic item.

6.4.4. Estimate of Probable Repair Costs

A repair program to address the above-mentioned items is warranted within the next five years. To assist the City with planning repairs for this structure, we have developed a projection of the costs associated with the recommended repairs described above. Based on discussions with City staff, it is our understanding that maintenance of the entire garage is the responsibility of the City, with the condominium association responsible for reimbursing the City for the appropriate portion of the repair and maintenance costs. A breakdown of the projected costs for each of the work items and the prioritization of these items is provided in Table 6.1 below.

Table 6.1. Estimate of Probable Repair Costs for the Sherman Plaza Parking Garage

Priority	Repair Item	Estimated		Unit Cost		Total Cost
		Quantity				
Medium	Partial-depth vertical and overhead concrete repair	25	Sq Ft	\$160	/Sq Ft	\$4,000
Medium	Partial-depth top surface concrete delamination	75	Sq Ft	\$100	/Sq Ft	\$7,500
Medium	Post-tensioning tendon grout pocket repair	60	Each	\$100	/Each	\$6,000
Medium	Recoat of existing and placement of new traffic-bearing waterproofing membrane	43,000	Sq Ft	\$4	/Sq Ft	\$172,000
Medium	Repair of traffic-bearing waterproofing membrane	400	Sq Ft	-	-	\$10,000
Medium	Failed tread replacement in southeast stairwell			Allowance		\$2,000
Medium	Facade panel connection restoration and waterproofing			Allowance		\$10,000
Medium	Replacement of failed barrier cable			Allowance		\$1,500
Medium	CMU wall repairs at Davis Street exit ramp			Allowance		\$4,000
Low	Slab-on-ground and curb concrete repairs	20	Sq Ft	\$50	/Sq Ft	\$1,000
Low	Replace sealant	8,000	Lin Ft	\$5	/Lin Ft	\$40,000
Low	Floor drain system repairs			Allowance		\$3,000
Low	Level 3 and Level 4 CMU wall repairs			Allowance		\$4,000
Subtotal						\$265,000
General Conditions (20%)						\$55,000
Engineering (6%)						\$20,000
Total						\$340,000

Because the corrosion process is ongoing, concrete and steel deterioration will continue if unrepaired and unprotected, and as a result, the quantities projected above will increase with time. Therefore, it should be anticipated that the cost and extent of the repairs will increase if the repair work is postponed for a significant period of time. Additionally, the costs are estimated in 2021 dollars. Some of the high unit costs reflect the small quantity of the repair item.

In addition to the repairs outlined above, the City and condominium association should also prepare for regular maintenance of the silane sealer that is present over approximately 420,000 square feet of the parking garage, and it is our understanding that sealer was last applied to the garage slab in 2019. The City and the condominium association should budget an estimated \$210,000 and \$60,000, respectively, for recoating of these areas on a five to ten year timeframe.

6.5. Figures

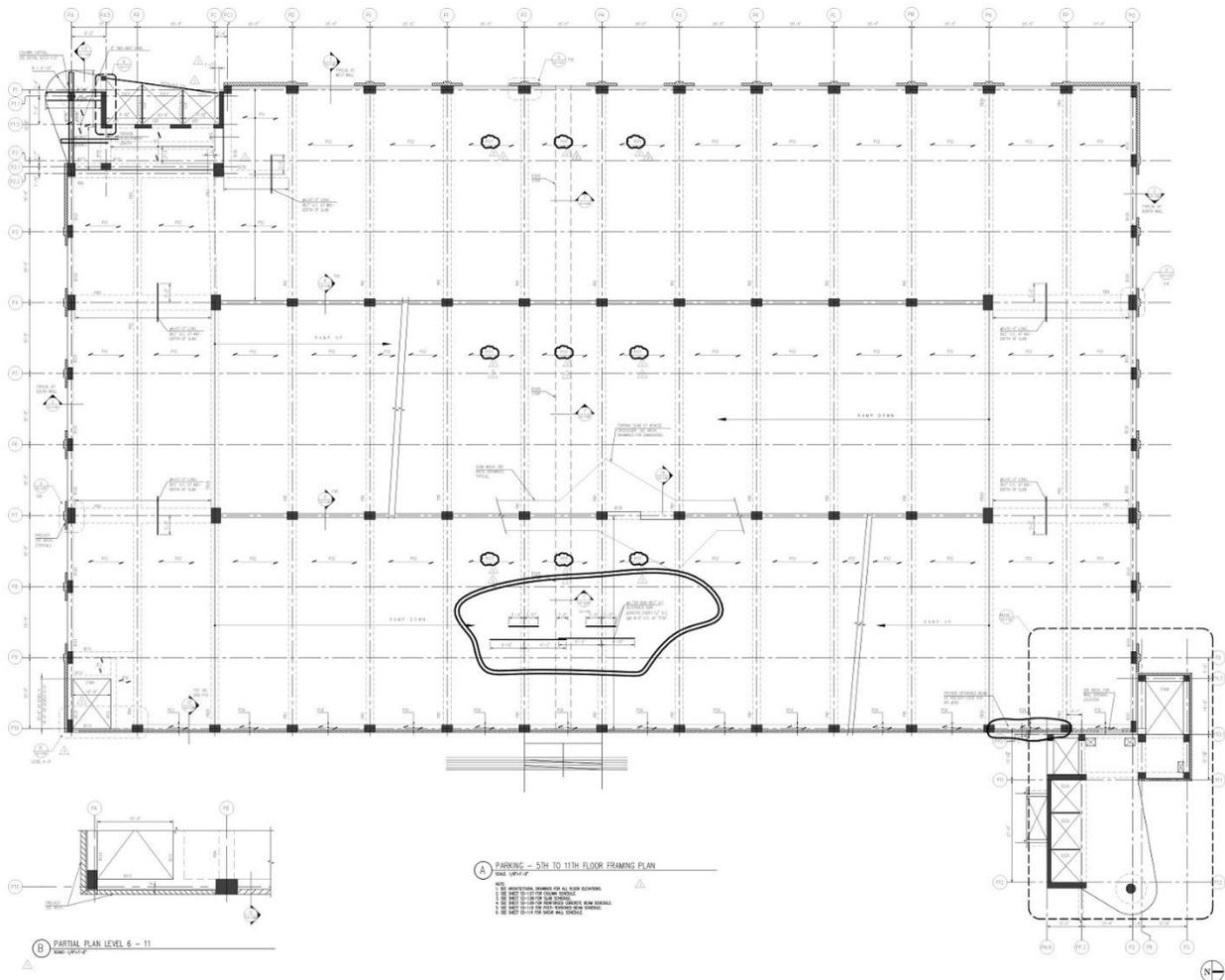


Figure 6.1. Plan view of a typical floor of the Sherman Plaza Parking Garage.



Figure 6.2. Distributed deck cracking on top surface of rooftop (Level 12) deck.



Figure 6.3. Underside of through-cracking observed in the northeast portion of the Level 12 slab.



Figure 6.4. Corrosion staining and cracking on the underside of Beam PP/P7-P10 beneath the northeast corner of Level 12.



Figure 6.5. End cracking observed in post-tensioned beam framing into west face of Column PH/P7 below the rooftop cross-over.



Figure 6.6. Cracking at beam/column junction beneath Level 12 at Column PE/P7.



Figure 6.7. Loose grout pocket observed at Column PL/P7 on Level 11.



Figure 6.8. Facade panel vertical support missing requisite shim plate to bear on at Column PD/P1 on Level 5.



Figure 6.9. Facade panel bearing connection with point bearing at the end of the flame-cut bearing plate.



Figure 6.10. Facade panel bearing connection with edge bearing along parts of the flame-cut bearing plate.



Figure 6.11. Significant flame-cutting of the facade panel bearing plate at Column PQ/P1 of Level 11.



Figure 6.12. Splaying of shim stack at facade panel connection near Column PQ/P1 on Level 7.



Figure 6.13. Walkout of shim plates at facade panel connection near Column PQ/P1 on Level 8.



Figure 6.14. Failed barrier cable at Column PJ/P7 on Level 6.



Figure 6.15. Dislodged and cracked CMU in the partition wall adjacent to the Davis Street exit ramp.



Figure 6.16. Failed tread in the southeast stairwell. The crack (indicated by red arrow) extends from a failed weld that previously affixed the tread to the supporting riser.



Figure 6.17. Sliding deadbolt affixed to exterior of the Level 12 vestibule in front of the northeast elevator bank.



Figure 6.18. Post-tensioning strand sheathing exposed on top of the Level 12 deck near the south end of the Middle Bay.



Figure 6.19. Joint in the East Bay of Level 5 presenting signs of moisture penetration, including moisture staining, corrosion staining and peeling paint.



Figure 6.20. Paint peeling beneath the pour strip in the Middle Bay of the Level 7 deck.



Figure 6.21. Paint peeling from the sides and bottoms of multiple beams in the Middle Bay of the Level 5 deck.



Figure 6.22. Crack in the facade panel anchored at Column PJ/P1 above the Level 5 slab with a maximum measured opening of 0.025 inches.

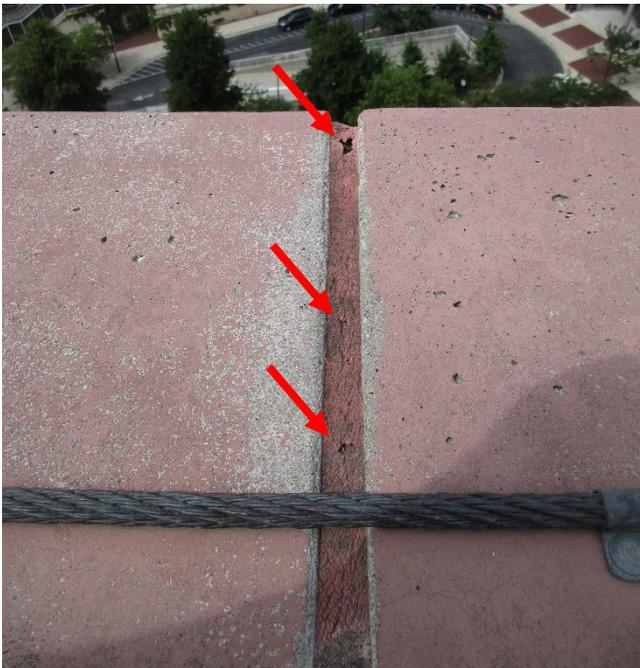


Figure 6.23. Sealant between the tops of facade panels at Column PH/P1. Note the alligator cracking pattern and local failures in the sealant indicated with red arrows.



Figure 6.24. Worn waterproofing membrane on the Middle Bay slab ramping up from Level 2 to Level 3 near Column Line PK, with region worn through to the deck indicated with red arrow.



Figure 6.25. Waterproofing membrane on the Middle Bay slab ramping up from Level 2 to Level 3 beyond Column Line PK, featuring a newer top coat in good condition.



Figure 6.26. Davis Street entrance ramp, showing membrane wear through to the concrete deck.



Figure 6.27. Davis Street exit ramp, showing membrane wear through to the concrete deck.



Figure 6.28. Moderate drain pipe corrosion near Column PN/P7 beneath the Level 7 slab.



Figure 6.29. Corroded drain grate near Column PC/P4 on Level 10.



Figure 6.30. CMU partition wall cracking observed on Level 3.



Figure 6.31. Freeze-thaw deterioration of concrete encasement over the steel column baseplate at the Level 12 vestibule in the northeast corner of the garage.



Figure 6.32. Regularly-spaced vertical cracking in the concrete edge wall along the west side of the Davis Street exit ramp.



Figure 6.33. Overhead concrete delamination observed beneath the Level 4 deck.



Figure 6.34. View inside the detention basin beneath the ramp slab, looking east toward the confined space entrance.



Figure 6.35. Concrete delamination on the underside of the ramp slab beneath embedded electrical conduit.



Figure 6.36. Drain above the debonded waterproofing liner next to Column PC/P7.



Figure 6.37. Drain and debonded waterproofing liner next to Column PC/P4.

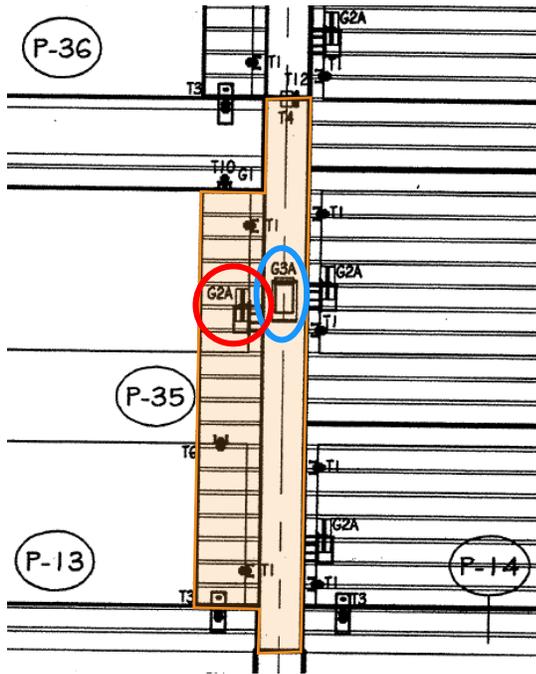


Figure 6.38. Original drawing elevation of the facade panel (shaded and outlined in orange) with missing vertical support (circled in red) observed at Level 5 Column PD/P1. The blue oval indicates the other vertical support for this facade panel piece.

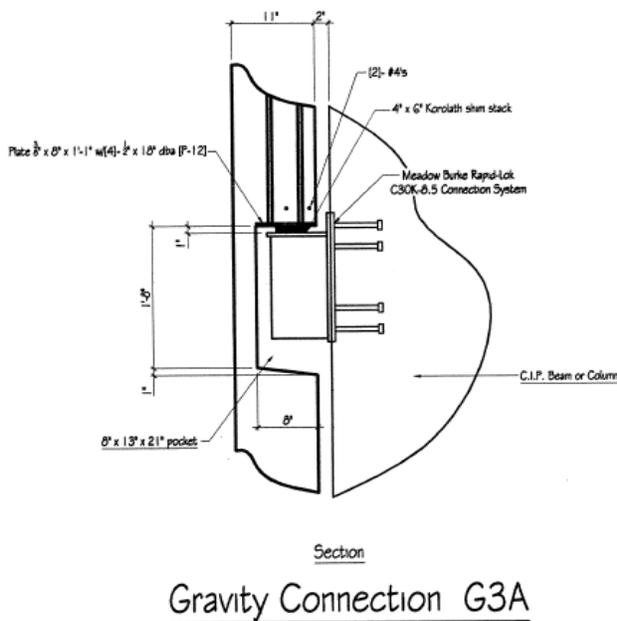


Figure 6.39. Elevation of remaining vertical connection for facade panel supported at Level 5 Column PD/P1.



Figure 6.40. Post-tensioning strands and conventional reinforcing steel visible in the inspection opening made on the underside of Level 12 Beam PJ/P7-P10. The openings in the sheathing of the three strands at left are covered with sheathing repair tape.



Figure 6.41. Post-tensioning strands and conventional reinforcing steel visible in the inspection opening made on the underside of Level 12 Beam PP/P7-P10.



APPENDIX A. WATER SOLUBLE CHLORIDE ANALYSIS



MEMORANDUM | February 15, 2021

City Of Evanston - Parking Garage
Water Soluble Chloride Analysis

WJE PROJECT NO. 2020.1793

TO Jim Donnelly
 Principal
 Wiss, Janney, Elstner Associates
 330 Pringsten Rd
 Northbrook, IL 60062

FROM Jesus Lagunas, Daniela Mauro

SAMPLES

Thirty-nine concrete powder samples were received for water soluble chloride testing. The samples were reported as being drilled at thirteen locations at depths listed in Table 1.

TESTING AND RESULTS

As requested, the water-soluble chloride contents were determined for each sample. The water-soluble chloride analysis was performed essentially according to ASTM C1218, *Method for Water-Soluble Chloride in Mortar and Concrete*. The results are listed in Table 1.

Table 1. Water Soluble Chloride Results

Location	Depth (inches)	Water-Soluble Chloride, % by mass of sample	Probability of Corrosion Initiation
2M	0 - 1	0.025	Negligible (< 1%)
	1 - 2	0.022	Negligible (< 1%)
	2 - 3	0.024	Negligible (< 1%)
2N	0 - 1	0.044	Moderate (10 to 50%)
	1 - 2	0.023	Negligible (< 1%)
	2 - 3	0.025	Negligible (< 1%)
2S	0 - 1	0.367	Very High (> 90%)
	1 - 2	0.337	Very High (> 90%)
	2 - 3	0.081	High (50 to 90%)
3M	0 - 1	0.143	Very High (> 90%)
	1 - 2	0.036	Low (1 to 10%)
	2 - 3	0.013	Negligible (< 1%)
3N	0 - 1	0.024	Negligible (< 1%)
	1 - 2	0.016	Negligible (< 1%)
	2 - 3	0.014	Negligible (< 1%)

Location	Depth (inches)	Water-Soluble Chloride, % by mass of sample	Probability of Corrosion Initiation
3S	0 - 1	0.048	Moderate (10 to 50%)
	1 - 2	0.044	Moderate (10 to 50%)
	2 - 3	0.017	Negligible (< 1%)
4M	0 - 1	0.303	Very High (> 90%)
	1 - 2	0.143	Very High (> 90%)
	2 - 3	0.018	Negligible (< 1%)
4N	0 - 1	0.008	Negligible (< 1%)
	1 - 2	0.008	Negligible (< 1%)
	2 - 3	0.014	Negligible (< 1%)
4S	0 - 1	0.164	Very High (> 90%)
	1 - 2	0.028	Negligible (< 1%)
	2 - 3	0.007	Negligible (< 1%)
5M	0 - 1	0.088	High (50 to 90%)
	1 - 2	0.028	Negligible (< 1%)
	2 - 3	0.012	Negligible (< 1%)
5N	0 - 1	0.188	Very High (> 90%)
	1 - 2	0.032	Low (1 to 10%)
	2 - 3	0.024	Negligible (< 1%)
5S	0 - 1	0.185	Very High (> 90%)
	1 - 2	0.060	Moderate (10 to 50%)
	2 - 3	0.016	Negligible (< 1%)
6X	0 - 1	0.313	Very High (> 90%)
	1 - 2	0.233	Very High (> 90%)
	2 - 3	0.067	Moderate (10 to 50%)

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Bid Identifier	Agency Name	Bid Status	Broadcast Date	Date Due ▼	Name	Actions
RFP-2019-01-0-2019/df	Town of Malabar	Active	5/15/2019	5/31/2019	Malabar Parks and Recreation Board Memorial Wall Project	Planholders, Download/Order, Details
EBID-20190077-0-2019/HF	City of Port St. Lucie, Procurement Management Department	Active	4/25/2019	5/31/2019	Purchase Breaching "Backpack Gas Masks and Gas Mask Cartridges for the Police Department JAG Grant Funded	E-Bidding, Planholders, Download/Order, Details



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1. Click on “E-bidding” in
the actions column

Bid Identifier	Agency Name	Bid Status	Broadcast Date	Date Due ▼	Name	Actions
RFP-2019-01-0-2019/df	Town of Malabar	Active	5/15/2019	5/31/2019	Malabar Parks and Recreation Board Memorial Wall Project	Planholders, Download/Order, Details
EBID-20190077-0-2019/HF	City of Port St. Lucie, Procurement Management Department	Active	4/25/2019	5/31/2019	Purchase Breaching “Backpa Gas Masks and Gas Mask Cartridges for the Police Department JAG Grant Funded	E-Bidding, Planholders, Download/Order, Details

In order to do
e-bidding

2. Enter your contact information and enter in all required fields

Note: You **MUST** put a number of the “BID AMOUNT” box. However, that number can be 0 so as to allow for a more detailed description of your bid through your uploaded documents.

Contact Information

**indicates required fields*

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Address 1 *

Address 2

City *

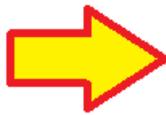
State *

Postal Code *

Phone *

Fax

Country *

 Bid Amount *

Alternate Bid Amount

Notes

In order to do e-bidding

- In the agency required documents section – check the documents you intend on uploading and fulfilling. By checking these boxes this is **ONLY** an acknowledgement of how you will fulfill the requirement. You still have to upload the documents.

Required Documents



The following documents are required by the agency for this project. Please select which documents you will be submitting electronically (online) and which ones you will submit directly to the agency (offline).

Agency Required Documents

Document	None	Online/ Electronic	Offline/ Manual	Not submitting
-	⚠	✓	📄	•
Bid Reply	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Checklist	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Subcontractor List	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Current Workload, List of Projects and Completion Dates	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Questionnaire	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drug Free Workplace Form	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In order to do e-bidding

Upload your response documents in an accepted file format

Make sure that you have covered and uploaded all the required documents

E-Bid Response Documents

Agency Name	City of Port St. Lucie, Procurement Management Department
Bid Number	EBID-20190077-0-2019/HF
Bid Name	Purchase Breaching "Backpack" Kits, Gas Masks and Gas Mask Cartridges for the Police Department JAG Grant Funded
Bid Due Date	5/31/2019 3:00:00 PM Eastern time
Bid Opening	14 days, 21 hours, 45 minutes, 5 seconds

No response documents uploaded

Agency Accepted File Formats



Formats

Adobe Acrobat (*.PDF)
Microsoft Excel (*.XLS)
Microsoft Excel (*.XLSX)
Microsoft PowerPoint (*.PPT)
Microsoft Word (*.DOC)
Microsoft Word (*.DOCX)

Upload Electronic Documents

** indicates required fields*



Document Title *

Specify Upload Document *

Choose File No file chosen

(Type the path of the document, or click the Browse button.)

Upload

In order to do e-bidding

Once you decide you've uploaded all your documents that you would like to submit, make sure you click the **NEXT** button at the bottom of the screen

E-Bid Response Documents

Agency Name City of Port St. Lucie, Procurement Management Department
Bid Number EBID-20180218-0-2018/jer
Bid Name Sculpture on Lawn at City Hall Temporary Art Installation
Bid Due Date 1/9/2019 2:00:00 PM Eastern time
Bid Opening 100 days, 1 hour, 20 minutes, 11 seconds

	Document Title	Format	Size	Uploaded	Status	Action
1	 E-Bidding for Suppliers	Microsoft Word	12 Kb	10/1/2018 9:39:50 AM	Complete	View , Remove

Agency Accepted File Formats

Formats
Adobe Acrobat (*.PDF)
Microsoft Excel (*.XLS)
Microsoft Excel (*.XLSX)
Microsoft PowerPoint (*.PPT)
Microsoft Word (*.DOC)
Microsoft Word (*.DOCX)

Upload Electronic Documents

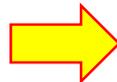
* indicates required fields

Document Title *

Specify Upload Document *

(Type the path of the document, or click the Browse button.)

Your document has successfully uploaded but your response is not yet complete. You must still click 'Submit Response' on Bid Response Details page in order to complete your response and receive a confirmation



Completing your e-bid submittal

- Please **VERIFY** that you have attached **ALL** the required documents
- Click on the **Submit Response** button to complete your e-bid

Agency Required Documents

EDIT

1. **Bid Reply** (Electronic/Online) ✓
2. **Checklist** (Electronic/Online) ✓
3. **Subcontractor List** (Electronic/Online) ✓
4. **Current Workload, List of Projects and Completion Dates** (Electronic/Online) ✓
5. **Questionnaire** (Electronic/Online) ✓
6. **Drug Free Workplace Form** (Electronic/Online) ✓
7. **Current Certificate of Insurance** (Electronic/Online) ✓
8. **License/Certification to do Described Work** (Electronic/Online) ✓
9. **Reference Check Form** (Electronic/Online) ✓
10. **E-Bid Reply Excel Spreadsheet** (Electronic/Online) ✓
11. **E-Bid Bond** (Electronic/Online) ✓
12. **Vendor Code of Ethics** (Electronic/Online) ✓
13. **W-9 form** (Electronic/Online) ✓

Uploaded Documents

EDIT

1. test document upload to ensure e-bidding active

E-Bid Confirmation

After clicking "Submit Response" the following process will begin:

- We will verify that your response is complete as entered.
- You will see a confirmation page with your confirmation number and date/time stamp of your upload.
- You will receive a confirmation e-mail indicating a successful response submittal.
- You may track your response submission under the View Responses page.

If you do not receive any of the above, please call Supplier Services at (206) 940-0305.

<< Return

Submit Response

Confirmation of Response

- When you complete you will receive a confirmation
- This is a confirmation that what you uploaded will be visible to the agency when the bid closes, **this is not** a confirmation that all your documents were fill out or submitted correctly

E-Bid Response Details

Agency Name City of Port St. Lucie, Procurement Management Department

Bid Number EBID-20180218-0-2018/er

Bid Name **Sculpture on Lawn at City Hall Temporary Art Installation**

Bid Due Date 1/9/2019 2:00:00 PM Eastern time

Bid Opening 100 days, 1 hour, 6 minutes, 46 seconds

Response # 15104

Results Your bid response is submitted.

<< Return

Post Submission Edits

If you feel like you missed something or need to make a change you can go back to your submittal response and edit your e-bid. By clicking on “DETAILS” then “EDIT” the section you wish

Bid Identifier	Agency Name	Bid Status	Broadcast	Date Due ▼	Name	Status	Actions
EBID-20190077-0-2019/HF	City of Port St. Lucie, Procurement Management Department	Active	4/25/2019	5/31/2019	Purchase Breaching “Backpack” Kits, Gas Masks and Gas Mask Cartridges for the Police Department JAG Grant Funded	Incomplete	Details, Bid, History

Contact Information

[EDIT](#)

Company Name Sample DBE Company
Address 1 509 Olive Way
Address 2
City Seattle
State Washington
Postal Code 98101
Phone 2063739233
Fax 2063739233
Country United States of America
Bid Amount \$0.00
Alternate Bid Amount
Notes



Agency Required Documents

[EDIT](#)

1. Bid Reply (Electronic/Online) ✓