July 15, 2020

Ms. Rachel Senzee  
Neighborhood Services Specialist  
City of Jefferson  
320 East McCarty Street  
Jefferson City, MO 65101

Re:  Structural Survey for Missouri State Capitol and Munichburg Commercial District  
Jefferson City, Missouri  
Walter P Moore Project No. D08.20009.00

Dear Ms. Senzee:

We have completed the visual exterior structural study of the structures included in the referenced historic districts in accordance with our proposal 19-2532 dated January 8, 2020.

Included in our report are an executive summary of the overall structural survey project and individual structure reports including our visual observations, recommendations for follow-up evaluation, and conceptual repair recommendations.

We very much appreciate this opportunity to provide these services to you. Please do not hesitate to contact us if we can further assist you with the follow-up evaluation and development of repair documents for the distress conditions described in the following report.

Sincerely,

Walter P. Moore and Associates, Inc.

David T. Ford, P.E., RRC, RWC, LEED AP  
Principal / Managing Director  
Diagnostics Group

Kristian Krc, P.E.  
Engineer  
Diagnostics Group

Enclosure: Individual Structure Reports
Executive Summary

Walter P Moore and Associates, Inc. has completed an exterior visual structural survey of one hundred properties located in the Missouri State Capitol and Munichburg Commercial Districts. The list of properties included in our study is provided in Table 1 below. Our study consisted of a visual evaluation of exterior masonry walls as visible from public streets and alleyways.

Several items in need of immediate actions were noted during the assessment that took place the week of May 18, 2020. These items were communicated via email to the City of Jefferson on May 22, 2020. The reported items included in the scope of this projects are:

- Structure #38 - 308 E High: Delaminated cornice at top of building at several locations presenting an overhead fall hazard
- Structure #53 - 223 Madison: Significantly leaning west wall parapet presenting an overhead fall hazard.
- Structure #44 - 215 E High: Bowing out loose masonry on north façade presenting an overhead fall hazard

Each structure was given a “Green,” “Yellow,” or “Red” condition rating. Condition ratings were assigned based on our visual observations, however, when available, owner reported information from the interior of the structure was considered in a structure’s condition rating. The rating definitions used are as follows:

- Green Condition – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated
- Yellow Condition – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future
- Red Condition – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

A total of six structures (6%) received the “Red” condition rating, 53 structures (53%) received the “Yellow” condition rating and 41 structures (41%) received the “Green” rating as noted in Table 1 and visually represented in Exhibits 1-10. It is recommended that the City of Jefferson notify the owners of “Red” condition structures of their rating and recommends a prompt assessment of their structure.

Each individual structure report contains general information provided by the City of Jefferson including items such as year built, reported historic status, current use, etc. In addition, Walter P Moore attempted to identify common walls for each structure. However, based on exterior observations and no interior access, presence of common walls could not be determined for the majority of the structures. In order to determine if adjacent structures share a common wall, access to the interior of each structure would be required.

The typical distress conditions observed include deteriorated mortar joints, spalled bricks, cracks in masonry, cracks in sill stones and cornices, deteriorated cap stones or coping tiles, deteriorated or cracked stucco or Exterior Insulation and Finish System (EIFS), and peeling paint. These observations are typical for historic unreinforced masonry structures with deferred or minimal maintenance.
Table 1 - List of Structures Included in Survey

<table>
<thead>
<tr>
<th>Structure #</th>
<th>Address(es) within Structure</th>
<th>Structure #</th>
<th>Address(es) within Structure</th>
<th>Structure #</th>
<th>Address(es) within Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>101 W High</td>
<td>35</td>
<td>300 E High</td>
<td>69</td>
<td>115 E High</td>
</tr>
<tr>
<td></td>
<td>103 W High</td>
<td></td>
<td>301 Monroe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>105 W High</td>
<td>36</td>
<td>304 E High</td>
<td>70</td>
<td>113 E High</td>
</tr>
<tr>
<td>3</td>
<td>109-111 W High</td>
<td>37</td>
<td>306 E High</td>
<td>71</td>
<td>111 E High</td>
</tr>
<tr>
<td>4</td>
<td>113-117 W High</td>
<td>38</td>
<td>308 E High</td>
<td>72</td>
<td>109 E High</td>
</tr>
<tr>
<td>5</td>
<td>302 Jefferson</td>
<td>39</td>
<td>314 E High</td>
<td>73</td>
<td>107 E High</td>
</tr>
<tr>
<td>6</td>
<td>306-308 Jefferson</td>
<td>40</td>
<td>231-237 E High</td>
<td>74</td>
<td>105 E High</td>
</tr>
<tr>
<td>7</td>
<td>100 E High</td>
<td>41</td>
<td>225-227 E High</td>
<td>75</td>
<td>103 E High</td>
</tr>
<tr>
<td></td>
<td>305 Jefferson</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>102-104 E High</td>
<td>42</td>
<td>223 E High</td>
<td>76</td>
<td>101 E High</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>227 Jefferson</td>
</tr>
<tr>
<td>9</td>
<td>106-108 E High</td>
<td>43</td>
<td>221 E High</td>
<td>77</td>
<td>225 Jefferson</td>
</tr>
<tr>
<td>10</td>
<td>110-112-114 E High</td>
<td>44</td>
<td>215 E High</td>
<td>78</td>
<td>216 Madison</td>
</tr>
<tr>
<td>11</td>
<td>114A E High</td>
<td>45</td>
<td>211 E High</td>
<td>79</td>
<td>214 Madison</td>
</tr>
<tr>
<td>12</td>
<td>116 E High</td>
<td>46</td>
<td>209 E High</td>
<td>80</td>
<td>212 Madison</td>
</tr>
<tr>
<td>13</td>
<td>118 E High</td>
<td>47</td>
<td>207 E High</td>
<td>81</td>
<td>208 Madison</td>
</tr>
<tr>
<td>14</td>
<td>120 E High</td>
<td>48</td>
<td>205 E High</td>
<td>82</td>
<td>109-111-113 Madison</td>
</tr>
<tr>
<td>15</td>
<td>122 E High</td>
<td>49</td>
<td>201-203 E High</td>
<td>83</td>
<td>115-117 Madison</td>
</tr>
<tr>
<td>16</td>
<td>124-126 E High</td>
<td>50</td>
<td>229 Madison</td>
<td>84</td>
<td>205 E Capitol</td>
</tr>
<tr>
<td>17</td>
<td>128 E High</td>
<td>51</td>
<td>227 Madison</td>
<td>85</td>
<td>207 E Capitol</td>
</tr>
<tr>
<td>18</td>
<td>130 E High</td>
<td>52</td>
<td>225 Madison</td>
<td>86</td>
<td>211-213 E Capitol</td>
</tr>
<tr>
<td>19</td>
<td>132 E High</td>
<td>53</td>
<td>223 Madison</td>
<td>87</td>
<td>215 E Capitol</td>
</tr>
<tr>
<td>20</td>
<td>306 Madison</td>
<td>54</td>
<td>221 Madison</td>
<td>88</td>
<td>217 E Capitol</td>
</tr>
<tr>
<td>21</td>
<td>202 E High</td>
<td>55</td>
<td>219 Madison</td>
<td>89</td>
<td>221 E Capitol</td>
</tr>
<tr>
<td>22</td>
<td>204 E High</td>
<td>56</td>
<td>210 Commercial Way</td>
<td>90</td>
<td>223 E Capitol</td>
</tr>
<tr>
<td>23</td>
<td>206-210 E High</td>
<td>57</td>
<td>220 Madison</td>
<td>91</td>
<td>225-227 E Capitol</td>
</tr>
<tr>
<td>24</td>
<td>212 E High</td>
<td>58</td>
<td>222-224 Madison</td>
<td>92</td>
<td>114-118 E Dunklin</td>
</tr>
<tr>
<td>25</td>
<td>218 E High</td>
<td>59</td>
<td>226 Madison</td>
<td>93</td>
<td>120-122 E Dunklin</td>
</tr>
<tr>
<td>26</td>
<td>220 E High</td>
<td>60</td>
<td>228 Madison</td>
<td>94</td>
<td>124 E Dunklin</td>
</tr>
<tr>
<td>27</td>
<td>222 E High</td>
<td>61</td>
<td>238 Madison</td>
<td>95</td>
<td>126 E Dunklin</td>
</tr>
<tr>
<td>28</td>
<td>226 E High</td>
<td>62</td>
<td>131 E High</td>
<td>96</td>
<td>128 E Dunklin</td>
</tr>
<tr>
<td>29</td>
<td>232 E High</td>
<td>63</td>
<td>129 E High</td>
<td>97</td>
<td>704 Madison</td>
</tr>
<tr>
<td>30</td>
<td>236 E High</td>
<td>64</td>
<td>127 E High</td>
<td>98</td>
<td>130 E Dunklin</td>
</tr>
<tr>
<td>31</td>
<td>240 E High</td>
<td>65</td>
<td>125 E High</td>
<td>99</td>
<td>610 Madison</td>
</tr>
<tr>
<td>32</td>
<td>306 Monroe</td>
<td>66</td>
<td>123 E High</td>
<td>100</td>
<td>620 Madison</td>
</tr>
<tr>
<td>33</td>
<td>308 Monroe</td>
<td>67</td>
<td>121 E High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>310-312 Monroe</td>
<td>68</td>
<td>117 E High</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. The above referenced structure numbering system was provided by the City of Jefferson
2. Total of 6 Red, 53 Yellow, and 41 Green
OVERALL VIEW OF MISSOURI STATE CAPITOL HISTORIC DISTRICT

LEGEND
EXHIBIT NUMBER
EXHIBIT 2 - MISSOURI STATE CAPITOL HISTORIC DISTRICT

LEGEND

# STRUCTURE NUMBER
GREEN CONDITION RATING
YELLOW CONDITION RATING
RED CONDITION RATING

NOTES:
1. APPROXIMATE LOCATIONS OF STRUCTURES HIGHLIGHTED

MISSOURI STATE CAPITOL HISTORIC DISTRICT

EXHIBIT 2 - MISSOURI STATE CAPITOL HISTORIC DISTRICT

NO SCALE

COPYRIGHT © 2019 WALTER P. MOORE AND ASSOCIATES, INC.
EXHIBIT 3 - MISSOURI STATE CAPITOL HISTORIC DISTRICT

LEGEND

- STRUCTURE NUMBER
- GREEN CONDITION RATING
- YELLOW CONDITION RATING
- RED CONDITION RATING

NOTES:
1. APPROXIMATE LOCATIONS OF STRUCTURES HIGHLIGHTED

EXHIBIT 3 - MISSOURI STATE CAPITOL HISTORIC DISTRICT
NO SCALE
EXHIBIT 4 - MISSOURI STATE CAPITOL HISTORIC DISTRICT

NOTES:
1. APPROXIMATE LOCATIONS OF STRUCTURES HIGHLIGHTED

LEGEND

<table>
<thead>
<tr>
<th>#</th>
<th>STRUCTURE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>GREEN CONDITION RATING</td>
</tr>
<tr>
<td>#</td>
<td>YELLOW CONDITION RATING</td>
</tr>
<tr>
<td>#</td>
<td>RED CONDITION RATING</td>
</tr>
</tbody>
</table>

MISSOURI STATE CAPITOL HISTORIC DISTRICT

Copyright © 2019 WALTER P. MOORE AND ASSOCIATES, INC.
EXHIBIT 5 - MISSOURI STATE CAPITOL HISTORIC DISTRICT

NOTES:
1. APPROXIMATE LOCATIONS OF STRUCTURES HIGHLIGHTED

LEGEND
- STRUCTURE NUMBER
- GREEN CONDITION RATING
- YELLOW CONDITION RATING
- RED CONDITION RATING

EXHIBIT 5 - MISSOURI STATE CAPITOL HISTORIC DISTRICT
NO SCALE
NOTES:
1. APPROXIMATE LOCATIONS OF STRUCTURES HIGHLIGHTED

EXHIBIT 6 - MISSOURI STATE CAPITOL HISTORIC DISTRICT
NO SCALE

LEGEND

# STRUCTURE NUMBER
GREEN CONDITION RATING
YELLOW CONDITION RATING
RED CONDITION RATING

CITY OF JEFFERSON

MISSOURI STATE CAPITOL HISTORIC DISTRICT

EXHIBIT 6 - MISSOURI STATE CAPITOL HISTORIC DISTRICT
NOTES:
1. APPROXIMATE LOCATIONS OF STRUCTURES HIGHLIGHTED

EXHIBIT 7 - MISSOURI STATE CAPITOL HISTORIC DISTRICT

LEGEND
- # STRUCTURE NUMBER
- GREEN CONDITION RATING
- YELLOW CONDITION RATING
- RED CONDITION RATING

MISSOURI STATE CAPITOL HISTORIC DISTRICT

EXHIBIT 7

No. Date Description

Designed by:
Approved by:
Drawn by:

Project Number: D08 20009.00
Date: JULY 15, 2020

Copyright © 2019 WALTER P. MOORE AND ASSOCIATES, INC.
NOTES:
1. APPROXIMATE LOCATIONS OF STRUCTURES HIGHLIGHTED

EXHIBIT 8 - MISSOURI STATE CAPITOL HISTORIC DISTRICT
NO SCALE

LEGEND

<table>
<thead>
<tr>
<th>#</th>
<th>STRUCTURE NUMBER</th>
<th>GREEN CONDITION RATING</th>
<th>YELLOW CONDITION RATING</th>
<th>RED CONDITION RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>83</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MISSOURI STATE CAPITOL HISTORIC DISTRICT

JULY 15, 2020
NORTH
EXHIBIT 8 - MISSOURI STATE CAPITOL HISTORIC DISTRICT

NOTES:
1. APPROXIMATE LOCATIONS OF STRUCTURES HIGHLIGHTED

LEGEND
# STRUCTURE NUMBER
GREEN CONDITION RATING
YELLOW CONDITION RATING
RED CONDITION RATING

CITY OF JEFFERSON

MUNICHBURG COMMERCIAL DISTRICT

EX-10
101/103 W HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>c. 1880</th>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Merchant’s Bank and Neef Terrace Buildings</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Central Travel</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls. A portion of the building has been removed since the original construction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The building was experiencing roof leaks, but the problem was rectified with a new roof and gutters in April 2020.
2. Minor tuckpointing has been done on the building.

Visual Observations
The following are our observations:
1. Minor wear at top of east wall (Photo 2)
2. Isolated mortar joint deterioration on east elevation (Photo 3)
3. Previously repaired crack under window in south elevation (Photo 5)

Discussion
The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.
**Recommendations**
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: North elevation, minor wearing at top of wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: East elevation, minor wear at top of wall</td>
</tr>
<tr>
<td>Photo 3: Isolated mortar joint deterioration on east elevation</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: South elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Photo 4: South elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Previously repaired crack under window on south elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Photo 5: Previously repaired crack under window on south elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 6: South and west elevations</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Photo 6: South and west elevations" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
105 W HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
---|---
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Central Investment</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Isolated efflorescence on north elevation (Photo 2)
2. Isolated brick spalls on north elevation (Photo 2)
3. Deteriorated mortar joints (Photo 3, 5)
4. Cracked sill stone on north elevation (Photo 4)
5. Deteriorated stone on west elevation (Photo 7)
6. Previous brick repair (Photo 8)
7. Isolated stucco deterioration (Photo 9)
**Discussion**

Efflorescence is caused by water flowing through masonry inducing the migration of water-soluble salts present in brick, mortar, backing or soil. These salts deposit on the exterior of the masonry creating white powdery surface coating.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed cracks in the sill stone on the north elevation and the stones on the west elevation are typically due to exposure to moisture and repeated freeze-thaw cycles. As they continue to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The observed deterioration of stucco is likely due to poor workmanship during stucco application or long-term water infiltration. With continued moisture infiltration, it is likely that this distress condition will continue to worsen and allow an increased amount of moisture to come in contact with bricks and mortar behind. To prevent deterioration of structural elements beyond the stucco, the pathway of moisture through the stucco should be stopped.

**Recommendations**

Based on the observations we recommend the following:

1. Determine source of moisture that is causing efflorescence and take remedial actions to stop the moisture
2. Localized brick replacement of spalled bricks
3. Repoint deteriorated mortar joints
4. Monitor cracked stones for loose pieces and remove or securely reattach any loose pieces
5. Removal and replacement of distressed stucco
<table>
<thead>
<tr>
<th><strong>OBSERVATIONS</strong></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
<td>Photo 1: North elevation</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
<td>Photo 2: Isolated efflorescence and brick spalls above window</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
<td>Photo 3: Open head joints above window</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4:</th>
<th>Cracked sill stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5:</td>
<td>Open head joints above storefront</td>
</tr>
<tr>
<td>Photo 6:</td>
<td>West elevation</td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

<table>
<thead>
<tr>
<th>Photo 7: Deteriorated stone on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Photo 7" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 8: Previous brick repair</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Photo 8" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 9: South elevation, isolated stucco deterioration</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Photo 9" /></td>
</tr>
</tbody>
</table>
## GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMU</td>
<td>Concrete Masonry Unit</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.</td>
</tr>
<tr>
<td>CORROSION</td>
<td>Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.</td>
</tr>
<tr>
<td>DEFLECTION</td>
<td>A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.</td>
</tr>
<tr>
<td>DELAMINATION</td>
<td>In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.</td>
</tr>
<tr>
<td>DETERIORATION</td>
<td>Disintegration or chemical decomposition of a material during service exposure.</td>
</tr>
<tr>
<td>DIAGONAL CRACK</td>
<td>An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.</td>
</tr>
<tr>
<td>DURABILITY</td>
<td>The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.</td>
</tr>
<tr>
<td>EFFLORESCENCE</td>
<td>A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.</td>
</tr>
<tr>
<td>FAÇADE</td>
<td>The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.</td>
</tr>
<tr>
<td>HAIRLINE CRACKING</td>
<td>Small cracks of random pattern in an exposed concrete surface.</td>
</tr>
<tr>
<td>JOINT SEALANT</td>
<td>Compressible material used to exclude water and solid foreign material from joints.</td>
</tr>
<tr>
<td>MAINTENANCE</td>
<td>Taking periodic actions that will either prevent or delay damage or deterioration or both.</td>
</tr>
<tr>
<td>PEELING</td>
<td>A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.</td>
</tr>
<tr>
<td>REINFORCEMENT</td>
<td>Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.</td>
</tr>
<tr>
<td>SCALING</td>
<td>Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.</td>
</tr>
<tr>
<td>SERVICE LIFE</td>
<td>Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.</td>
</tr>
<tr>
<td>SHRINKAGE CRACKING</td>
<td>Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.</td>
</tr>
<tr>
<td>SOFFIT</td>
<td>The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.</td>
</tr>
<tr>
<td>SPALL</td>
<td>A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.</td>
</tr>
</tbody>
</table>
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
109-111 W HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020
WPM Proposal No.: 19-2532
WPM Project No.: D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>NAACP/Parking Garage</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with commercial storefronts on two sides and a parking garage in the middle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Cracks in EIFS (Photo 1-2)
2. Pilaster bowing slightly out of plane (Photo 3)
3. Isolated brick spalls (Photo 5, 9, 11)
4. Infilled windows (Photo 5)
5. Mortar joint deterioration on east and south elevations (Photo 5, 6, 9)
6. Likely previous repointing on southeast corner (Photo 7)
Discussion
The observed deterioration of EIFS exhibited in an irregular pattern cracking is likely due to poor workmanship during EIFS base and/or finish coat application such as adding too much water, incorrect application, or application during extreme temperatures. However, exact cause of the observed distress could not be identified during the visual assessment. In order to determine the cause of the observed distress and extent of moisture infiltration, infrared scanning of the exterior coupled with exploratory openings should be performed.

The cause of the apparent bowing in the pilaster could not be identified during the visual assessment. Further investigation to determine the cause and the severity of the bowing is recommended.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:
1. Perform additional study to determine the cause and extent of the observed EIFS deterioration and to propose adequate repair approach
2. Perform additional study to determine the cause and extent of the observed bowing pilaster and to propose adequate repair approach
3. Localized replacement of spalled bricks
4. Repoint deteriorated mortar joints
## OBSERVATIONS

<p>| Photo 1 | Cracks in EIFS on north elevation |
| Photo 2 | Cracks in EIFS on north elevation |
| Photo 3 | Pilaster bowing slightly out of plane |</p>
<table>
<thead>
<tr>
<th>OBSERVATIONS – CONT.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 4:</strong> East elevation</td>
<td></td>
</tr>
</tbody>
</table>
| **Photo 5:** Isolated brick spalls | Window infills over life of structure  
Mortar joint deterioration below windows |
<p>| <strong>Photo 6:</strong> Mortar joint deterioration on top third of east wall |  |</p>
<table>
<thead>
<tr>
<th><strong>OBSERVATIONS – CONT.</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 7: Likely recent repointing on southeast corner</td>
<td></td>
</tr>
<tr>
<td>Photo 8: North elevation</td>
<td></td>
</tr>
<tr>
<td>Photo 9: Multiple brick spalls above window with accompanying mortar loss</td>
<td></td>
</tr>
</tbody>
</table>
### Observations – Cont.

<table>
<thead>
<tr>
<th>Photo 10: West elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="West elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 11: Isolated brick spalls</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Isolated brick spalls" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU**: Concrete Masonry Unit

**CONCRETE**: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION**: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION**: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION**: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION**: Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK**: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY**: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE**: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE**: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING**: Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT**: Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE**: Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING**: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT**: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING**: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE**: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING**: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT**: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL**: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
**113-117 W HIGH ST**
**JEFFERSON CITY, MO 65101**
**EXTERIOR STRUCTURAL SURVEY**

---

**Report Date** | 07/15/2020  
**WPM Proposal No.** | 19-2532  
**WPM Project No.** | D08.20009.00

---

**GENERAL INFORMATION**

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>No</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls.</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
</tr>
</tbody>
</table>

**Historic Status** | Non-contributing  
**Historic Name/Use** | Unknown  
**Current Use** | Arri’s Pizza

---

**STRUCTURAL SURVEY SUMMARY**

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. Repointing was done on the building in 2018.
2. There is efflorescence present in a few locations.
3. The roof was replaced in March, 2020.

**Visual Observations**
The following are our observations:

1. Isolated brick spalls on west wall (Photo 2)
2. Isolated locations of missing mortar on north wall (Photo 3)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:

1. Localized brick replacement of spalled bricks
2. Repoint deteriorated mortar joints
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: West elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Isolated brick spall near base of west wall</td>
</tr>
<tr>
<td>Photo 3: Isolated locations of missing mortar at glazed brick façade on north elevation</td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: South elevation
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
302 JEFFERSON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>1</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Building Description</td>
<td>Single-story masonry structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. The masonry wall on the east elevation is concealed with siding (Photo 1)
2. The masonry wall on the west elevation has been painted (Photo 2)
3. No visual signs of deterioration were observed

Discussion
The exposed masonry appears to be in generally good condition.

Recommendations
Based on the observations we recommend the following:
1. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> East elevation, masonry walls are covered with siding</td>
</tr>
<tr>
<td><strong>Photo 2:</strong> West elevation, painted masonry</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
306-308 JEFFERSON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>No</td>
</tr>
<tr>
<td>Current Use</td>
<td>CDFY – Council for Drug Free Youth</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The masonry walls are experiencing minor brick spalls.
2. Masonry joints are sandy and have minor voids.
3. The roof was replaced around 1998.

Visual Observations

The following are our observations:
1. The masonry on the first story of the east elevation is concealed by siding (Photo 1)
2. Stairstep cracking on east elevation (Photo 2)
3. Delaminated sill stone on east elevation (Photo 3)
4. Isolated deteriorated mortar joints in south elevation (Photo 5)
5. Masonry on west elevation has been painted (Photo 6)
6. Cracks in masonry and peeling paint on west elevation (Photo 7, 8)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar and brick distress is due to long term moisture intrusion and especially at and below the window sills at the front elevation. The brick units at the pediment appear to differ from those used in the remaining elevation. That and the inconsistency of certain details suggest that it has been reconstructed at some point in the past. The cracks at the west elevation may be due to some of these windows being placed after the original construction and in some cases located too close to one another.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed delaminated sill stone is generally due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The observed peeling of paint generally indicates that moisture is coming through the wall. The paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.

Recommendations
Based on the observations we recommend the following:

1. An evaluation of the masonry cracks
2. Repoint deteriorated mortar joints
3. A close-up evaluation of the delaminated sill stone
4. An evaluation to determine the source of the moisture that is causing the paint to peel is recommended. From that, determine a remediation to stop the moisture from coming through the wall.
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th>Photo 1: East elevation. The brick on the first story is covered with siding.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Photo 2: Stair step cracking in corner of east elevation</td>
</tr>
<tr>
<td></td>
<td>Photo 3: Delaminated sill stone and deteriorated mortar joints between windows on east elevation</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: South elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="South elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Isolated deteriorated mortar joints near AC units on south elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Deteriorated mortar joints" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 6: West elevation, painted brick</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="West elevation, painted brick" /></td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 7: Peeling paint and stairstep cracking on west elevation

Photo 8: Vertical crack on west elevation
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
100 E HIGH ST / 305 JEFFERSON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Albert E. Shoenbeck Building Missouri Realtors</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Isolated areas of previously replaced bricks on west elevation (Photo 2-3)
2. Previously repaired crack on west elevation (Photo 2)
3. Spalled sill stone (Photo 3)
4. Mortar joint deterioration on west elevation (Photo 4)
5. South elevation appears to have a brick veneer (Photo 5)
6. Mortar coming out of joints and exposed joint reinforcing on south elevation (Photo 6)
Discussion
The observed spall in the sill stone is typically due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The apparent exposed joint reinforcing on the south elevation is potentially due to corrosion of the joint reinforcement. The corrosion is pushing out the mortar, creating a potential overhead fall hazard. The mortar joints should be repointed, and the condition of the joint reinforcement should be assessed.

Recommendations
Based on the observations we recommend the following:
1. Monitor spalled sill stone for loose pieces and remove or securely reattach any loose pieces
2. Repoint deteriorated mortar joints
3. Repoint mortar joints on south veneer and assess condition of joint reinforcement
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: West elevation, previously replaced bricks (rectangle) and previously repaired crack (arrows)</td>
</tr>
<tr>
<td>Photo 3: Spalled sill stone (arrow) and previously replaced bricks (rectangle) on west elevation</td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: Mortar joint deterioration on west elevation

Photo 5: South elevation. Stair/elevator tower appears to be a brick veneer

Photo 6: Mortar coming out of joints, exposed joint reinforcing (at lower elevations)
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
102-104 E HIGH ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>1885</th>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Lohman’s Opera House</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Missouri Trucking Association</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Revel Catering</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Isolated mortar joint deterioration and brick spalls (Photo 2,4)
2. Isolated previous masonry repairs (Photo 3)
3. Deflecting lintel beam in East side of building (Photo 6)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The deflecting lintel beam is potentially due to deterioration of the lintel reducing its load carrying capacity. The deflection is resulting in separation of the bricks above the lintel allowing for potential moisture intrusion.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
2. Localized replacement of spalled bricks
3. A close-up visual evaluation of the deflecting lintel beam and widened horizontal brick joints by a professional engineer
<table>
<thead>
<tr>
<th>Photo</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1:</td>
<td>North elevation</td>
</tr>
<tr>
<td>Photo 2:</td>
<td>Isolated mortar deterioration at window arch</td>
</tr>
<tr>
<td>Photo 3:</td>
<td>Brick spalls infilled with mortar in various locations</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Isolated brick spalls</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 4" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: East and south elevations</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 5" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 6: Previously infilled opening. Lintel beam appears to be deflecting. It appears that horizontal mortar joints above the lintel may have been cracked or opened.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 6" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
106-108 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Historic Name/Use</td>
<td>Bankers Building</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>MIBA</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. No visual signs of deterioration were observed.

Discussion
The masonry appears to be in generally good condition.

Recommendations
Based on the observations we recommend the following:
1. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: North elevation</td>
<td></td>
</tr>
<tr>
<td>Photo 2: South elevation</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
### GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Built</td>
<td>1851-1857</td>
</tr>
<tr>
<td>Historic Status</td>
<td>Contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Tennessee House</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

### STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. Masonry joints are deteriorating at the back (south elevation) of the building.
2. The roofing is approximately 30 years old.
3. Water ponds on the roof.

**Visual Observations**

The following are our observations:

1. Mortar joint deterioration on the north elevation and localized mortar joint deterioration on the south elevation of the 110 portion of the building (Photo 2,5)
2. Distressed cornice on the north elevation (Photo 3)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed distressed cornice at the front of the building appears to be metal based on street level observations. The distress appears to be corrosion of the cornice due to moisture. As it continues to deteriorate, pieces of it can spall off, creating an overhead hazard.

Based on the owner survey information, the roof is likely nearing the end of its useful service life. Additionally, minor ponding water contributes to deterioration of the roofing system. Significant ponding water introduces loading on the roof framing members that may cause additional deflection and creep. If the roof framing members deflect enough, it could become a structural concern.

Recommendations
Based on the observations we recommend the following:
   1. Repoint of deteriorated mortar joints
   2. A close-up evaluation of deteriorated cornice
   3. Evaluation the roofing system and the extent of ponding
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Mortar joint deterioration on the north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Distressed cornice on north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: South elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Photo 4: South elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Missing brick and isolated mortar deterioration</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Photo 5: Missing brick and isolated mortar deterioration" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

Deterioration: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
114A E HIGH ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
<td></td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
<td></td>
</tr>
</tbody>
</table>

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Unique Creative</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure masonry walls.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Previous crack repair and repointing on north elevation (Photo 2-3)
2. Isolated mortar joint deterioration above third story window on north elevation (Photo 2)
3. Possible sloping of bricks (Photo 3)
4. Cracked sill stone at third story window on north elevation (Photo 4)
5. South elevation is concealed with siding, we were not able to observe the masonry (Photo 5)
Discussion
The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

It is possible that the crack above the top left window in Photo 2 and possible sloping of bricks as seen in Photo 3 is caused by deflection of the lintel beam above the ground floor. Deflection could be due to corrosion of a steel lintel beam or due to under sizing of the steel lintel beam.

The observed cracked in the sill stone is typically due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

Recommendations
Based on the observations we recommend the following:
1. Repointing of deteriorated mortar joints
2. Review of the lintel beam supporting the façade above the ground floor
3. Close up evaluation of the cracked sill stone
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
<td>Photo 1: North elevation</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
<td>Photo 2: Previously repaired stair step crack and repointing above window. Isolated deteriorated mortar joints above crack</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
<td>Photo 3: Previous repointing between second and third story windows. Bricks at this area also appear to be sloping down.</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Cracked sill stone at third story window</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 4" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: South elevation covered with siding</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 5" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
116 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020  
WPM Proposal No. 19-2532  
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown  | Historic Status | Non-contributing |
| No. of Levels | 2 | Historic Name/Use | Unknown |
| Basement (Y/N) | Unknown | Current Use | Cottonstone Gallery |
| Building Description | 2-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

Visual Observations

The following are our observations:

1. North elevation is concealed, so we were unable to observe the masonry wall (Photo 1)
2. West wall appears to be bowing slightly outward (Photo 5)

Discussion

The observed bowing wall did not show signs of continued movement, such as horizontal cracking. Since the bowing is very slight and there are no signs of movement, it is possible that it was constructed slightly out of plumb.

Recommendations

Based on the observations we recommend the following:

1. Continued monitoring of the west wall for signs of movement is recommended. If cracks develop or the extent of bowing appears to increase, an evaluation by a professional engineer is recommended.
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: North elevation, masonry</td>
<td>North elevation, masonry wall covered with cut stone veneer</td>
</tr>
<tr>
<td>wall covered with cut stone veneer</td>
<td></td>
</tr>
<tr>
<td>Photo 2: Southern half of east</td>
<td>Southern half of east elevation</td>
</tr>
<tr>
<td>elevation</td>
<td></td>
</tr>
<tr>
<td>Photo 3: South elevation</td>
<td>South elevation</td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: Southern half of west elevation

Photo 5: West wall appears to be slightly bowed out near concrete block at window opening
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERTIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
118 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION
Year Built Unknown
Historic Status Non-contributing
No. of Levels 2
Historic Name/Use Unknown
Basement (Y/N) Unknown
Current Use High Rise Bakery
Building Description 2-story structure with masonry walls
Common Walls Unknown based on limited access
Overall Structure Condition Green

STRUCTURAL SURVEY SUMMARY
Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Masonry walls are painted (Photo 1-5)
2. Isolated shallow brick spalls (Photo 2,4)
3. Isolated mortar joint deterioration on south elevation (Photo 4)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:
1. Localized brick replacement of spalled bricks
2. Repoint deteriorated mortar joints
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: North elevation, painted masonry</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Isolated shallow brick spalls on north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: South elevation, painted masonry</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Isolated shallow brick spalls and mortar joint deterioration above second story doors on south elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: West elevation, painted masonry</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The building is experiencing very minor brick spalls.
2. Minor grouting has been performed on the front wall.
3. The roofing is approximately 20 years old.

**Visual Observations**
The following are our observations:

1. The top ¾ of the north wall has been recently cleaned and repointed or possible reconstructed (Photo 1)
2. Isolated brick replacement at a few locations at the north wall (Photo 1)
3. The second and third stories on the south wall have a newer veneer (Photo 2)
4. An opening has been filled on the first story of the south wall (Photo 2)
5. There is isolated mortar joint deterioration on the south wall (Photo 3)
6. The top half of the chimney has been rebuilt (Photo 4)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Based on the owner survey information, the roofing is approximately 20 years old. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repair or replacement in the near future.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
2. An assessment of the roofing system
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> North elevation. Top section of wall appears to have been cleaned and repointed relatively recently.</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Photo 1: North elevation. Top section of wall appears to have been cleaned and repointed relatively recently." /></td>
<td></td>
</tr>
<tr>
<td><strong>Photo 2:</strong> South elevation. Second and third story have newer veneer than the rest of the building. Infilled opening on first story</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Photo 2: South elevation. Second and third story have newer veneer than the rest of the building. Infilled opening on first story" /></td>
<td></td>
</tr>
<tr>
<td><strong>Photo 3:</strong> Mortar joint deterioration around lintel on south elevation</td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Photo 3: Mortar joint deterioration around lintel on south elevation" /></td>
<td></td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

<table>
<thead>
<tr>
<th>Photo 4: Top half of chimney has been rebuilt</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.jpg" alt="Image of chimney with a red box highlighting the top half" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
**122 E HIGH ST**
**JEFFERSON CITY, MO 65101**
**EXTERIOR STRUCTURAL SURVEY**

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION**

<table>
<thead>
<tr>
<th>Year Built</th>
<th>c. 1880</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>4</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Tweedie’s</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Use</td>
<td>YoYums</td>
</tr>
<tr>
<td>Building Description</td>
<td>4-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

**STRUCTURAL SURVEY SUMMARY**

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The building is experiencing minor brick spalls.
2. Masonry joints are slightly sandy on the chimney.
3. There are very minor voids in the masonry joints.
4. The back door to the building sticks in hot weather.
5. The roofing is approximately 20 years old.

**Visual Observations**
The following are our observations:

1. Mortar joint deterioration on north elevation, south elevation, and chimney (Photo 2, 4-5)
2. Infilled openings on first story of south elevation (Photo 3)
3. Masonry repairs on south elevation (Photo 3)
4. Chimney appears to be leaning (Photo 4)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Based on the owner survey information, the roofing is approximately 20 years old. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repair or replacement in the near future.

Recommendations
Based on the observations we recommend the following:
   1. Repoint deteriorated mortar joints
   2. A close-up evaluation of the chimney
   3. An assessment of the rooting system
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th>Photo 1: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image1" alt="North elevation" /></td>
</tr>
<tr>
<td>Photo 2: Mortar loss in head joints and open head joints</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image2" alt="Mortar loss" /></td>
</tr>
<tr>
<td>Photo 3: South elevation, infilled openings on first story and masonry repairs throughout wall</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image3" alt="South elevation" /></td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

<table>
<thead>
<tr>
<th>Photo 4: Mortar joint deterioration at top of chimney and chimney appears to be leaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: Mortar deterioration that increases with height</td>
</tr>
</tbody>
</table>
## Glossary of Terms

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**Green Condition** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated.

**Yellow Condition** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future.

**Red Condition** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted.

**CMU:** Concrete Masonry Unit

**Concrete:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**Corrosion:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**Deflection:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**Delamination:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**Deterioration:** Disintegration or chemical decomposition of a material during service exposure.

**Diagonal Crack:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**Durability:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**Efflorescence:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**Facade:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**Hairline Cracking:** Small cracks of random pattern in an exposed concrete surface.

**Joint Sealant:** Compressible material used to exclude water and solid foreign material from joints.

**Maintenance:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**Peeling:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**Reinforcement:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**Scaling:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**Service Life:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element).

**Shrinkage Cracking:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**Soffit:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**Spall:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
124-126 E HIGH ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020  
WPM Proposal No. | 19-2532  
WPM Project No. | D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown | Historic Status | Non-contributing  
| No. of Levels | 2 | Historic Name/Use | Unknown  
| Basement (Y/N) | Unknown | Current Use | Cork  
| Building Description | 2-story structure with masonry walls  
| Common Walls | Unknown based on limited access  
| Overall Structure Condition | Yellow

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. The masonry walls have been painted (Photo 1)
2. Cracked cornice on north elevation (Photo 2)
3. Previous mortar joint repair or repointing on south elevation (Photo 4)
4. Paint peeling at mortar joints on south elevation (Photo 5)
5. Brick spalling and mortar joint deterioration on chimney (Photo 6)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed cracks in the cornice are generally due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The observed peeling of paint at the mortar joints generally indicates that moisture is coming through the wall. The paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.

The observed isolated brick spalls are generally due to previous repointing of the masonry with mortar that is harder than the original mortar. Repointing the masonry with harder mortar restricts the bricks from expanding with temperature changes and causes them to spall.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:
1. Removal of the cracked portion of the cornice and up-close review of the cornice to determine its condition and identify if other repairs are required is recommended
2. An evaluation to determine the source of the moisture that is causing the paint to peel is recommended and from that, determine a remediation to stop the moisture from coming through the wall
3. Repoint deteriorated mortar joints
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: North elevation, painted brick</td>
<td></td>
</tr>
<tr>
<td>Photo 2: Cracked cornice on north elevation</td>
<td></td>
</tr>
<tr>
<td>Photo 3: South elevation, painted masonry</td>
<td></td>
</tr>
<tr>
<td>Photo 4: Previous mortar repair or repointing on south elevation</td>
<td></td>
</tr>
<tr>
<td>Photo 5: Paint peeling at mortar joints on south elevation</td>
<td></td>
</tr>
<tr>
<td>Photo 6: Brick spall and mortar joint deterioration on chimney</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated.

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future.

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted.

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
128 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020
WPM Proposal No.: 19-2532
WPM Project No.: D08.20009.00

GENERAL INFORMATION

| Year Built | 1886 | Historic Status | Contributing |
| No. of Levels | 2 | Historic Name/Use | Burkel’s Shoes |
| Basement (Y/N) | Unknown | Current Use | Jimmy John’s |
| Building Description | 2-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. The north wall has been painted (Photo 1)
2. Isolated open head joints on north elevation (Photo 2)
3. Mortar joint deterioration on south elevation (Photo 4)

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1</strong>: North elevation, painted masonry</td>
</tr>
<tr>
<td><strong>Photo 2</strong>: Isolated open head joints and deteriorated bed joints on north elevation</td>
</tr>
<tr>
<td><strong>Photo 3</strong>: South elevation</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Deteriorated mortar joints on south elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: East elevation</td>
</tr>
</tbody>
</table>

---

**Exterior Structural Survey**  
**128 E High St**
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
130 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION
Year Built | c. 1890
Historic Status | Contributing
No. of Levels | 3
Historic Name/Use | Brandenberger Drug Store
Basement (Y/N) | Unknown
Current Use | Yanis Coffee Zone
Building Description | 3-story structure with masonry walls
Common Walls | Unknown based on limited access
Overall Structure Condition | Yellow

STRUCTURAL SURVEY SUMMARY
Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Masonry walls have been painted (Photo 1, 3)
2. Peeling paint at mortar joints on north elevation (Photo 2)
3. The lower 2/3 of the north wall appears rough with loss of brick faces and mortar head joint definition. (Photo 2)
4. Isolated mortar joint deterioration on north and south elevations (Photo 2, 4)
5. Isolated shallow brick spalls on south elevation (Photo 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion

The observed peeling of paint at the mortar joints generally indicates that moisture is coming through the wall. The paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.

The rough surface of the brick with loss of brick faces could be due to aggressive cleaning over the life of the structure. Typically, the face of an exterior rated brick has a protective waterproofing layer. Due to the loss of the brick face, the protective layer could have been compromised. Exterior waterproofing measures should be implemented to provide protection from moisture infiltration.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

Recommendations

Based on the observations we recommend the following:

1. An evaluation to determine the source of the moisture that is causing the paint to peel is recommended and from that, determine a remediation to stop the moisture from the coming through the wall
2. Provide exterior waterproofing measures on the north elevation with loss of brick faces
3. Repoint deteriorated mortar joints
4. Localized brick replacement of spalled bricks
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: North elevation. Painted brick. First story brick is covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Paint peeling at mortar joints and isolated mortar deterioration on north elevation. The lower 2/3 of the wall appears rough with loss of brick faces and mortar head joint definition.</td>
</tr>
<tr>
<td>Photo 3: South elevation, painted brick</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Isolated mortar joint deterioration on south elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: Isolated shallow brick spalls on south elevation</td>
</tr>
</tbody>
</table>

---

Exterior Structural Survey
130 E High St

OBSERVATIONS – CONT.  |  Photo 4: Isolated mortar joint deterioration on south elevation  |  Photo 5: Isolated shallow brick spalls on south elevation  |
---|---|

---

---
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
132 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>General Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Built</td>
<td>1926</td>
</tr>
<tr>
<td>Historic Status</td>
<td>Contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>Unknown</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Exchange National Bank</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>Hawthorn Bank</td>
</tr>
<tr>
<td>Building Description</td>
<td>2 or 3-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
</tr>
</tbody>
</table>

**Structural Survey Summary**

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

**Visual Observations**

The following are our observations:

1. Isolated open head joints and mortar joint deterioration (Photo 2, 4)
2. Peeling paint on west elevation (Photo 5)

**Discussion**

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed peeling of paint generally indicates that moisture is coming through the wall. The paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.
Recommendations

Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. An evaluation to determine the source of the moisture that is causing the paint to peel is recommended and from that, determine a remediation to stop the moisture from coming through the wall
OBSERVATIONS

Photo 1: North elevation

Photo 2: Isolated open head joints on north elevation

Photo 3: East elevation
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Slight mortar joint deterioration in cornice and parapet</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Isolated peeling paint on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Built</td>
<td>Unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Hawthorn Bank</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>North wall connected to adjacent building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

**Visual Observations**

The following are our observations:

1. Isolated shallow brick spall on east elevation (Photo 2)

**Discussion**

The observed isolated brick spalls are likely due to impact damage or previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

**Recommendations**

Based on the observations we recommend the following:

1. Localized brick replacement of the spalled brick
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: East elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Isolated shallow brick spall on east elevation</td>
</tr>
<tr>
<td>Photo 3: South elevation</td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: West elevation
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
202 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>Jennifer’s Photography</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls.</td>
</tr>
<tr>
<td>Common Walls</td>
<td>West wall used to be a common wall. West wall appears to be original to the structure, however, the adjacent building could have been relying on the wall as well. A report from McClure Engineering dated October 4, 2019 indicates the presence of a party wall between 202 E High St and 200 E High St.</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Red</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Lack of waterproofing measures at the top of the west wall (Photo 1)
2. West wall used to be an interior common wall with the structure that was recently demolished (Photo 1-3)
3. Varied spacing of post installed wall ties at each level (Photo 2)
4. Sloping of grade toward the structure’s foundation and ponding of runoff water (Photo 3)
5. Deteriorated cap stone at the top of the north façade (Photo 4)
6. Vegetation growth at north façade (Photo 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion

It was observed that the top of the west wall did not have waterproofing measures installed. Cap stones or metal flashing should be installed to prevent water from entering the building or the brick wall and causing distress of the wall or interior finishes.

Because the west wall was an interior common wall serving both structures, it is likely that the original construction utilized interior grade bricks. These types of bricks are porous and if exposed to moisture, are subject to accelerated deterioration. Additionally, it was observed that wall ties have been installed at each level at varied spacing. The wall ties were likely installed after the demolition of the adjacent structure. There are significant areas of the wall where no ties were observed. It is unknown if additional ties remain to be placed or if some other method of tying the wall back to the building floor and roof structures was used.

The sloping grade towards the structure allows water to pond against the structure’s basement wall and foundation. The water will cause accelerated deterioration of the brick wall and foundation. It could also lead to undermining of the historic foundation system. Unless water management system is planned to be installed adjacent to the structure’s basement wall or change of the grade is planned, this condition should be remedied. Additionally, the excavated soil adjacent to the structure could expose the foundation to freezing. If the existing foundation does not extend below the frost line, it could experience movement due to freezing of the surrounding soil during winter months.

Cap stones or coping serve to protect the top of the wall from moisture infiltration. The observed deterioration of the coping brick course at the north elevation could allow moisture to infiltrate between the wythes of brick and cause accelerated deterioration of brick and mortar assembly. Moisture infiltration into the interior of the building is also possible. In order to protect the wall assembly and interior finishes, the coping should be repaired.

The observed vegetation growth on the brick wall is an indication of the presence of moisture in the wall and detrimental to its condition. The method by which the vegetation growth attaches to the brick and mortar is causing mechanical abrasive distress to the brick and mortar. Additionally, the root system holds water that causes further chemical deterioration of bricks and mortar.

Recommendations

Based on the observations we recommend the following:

1. Install waterproofing measures at the top of the west wall
2. Install waterproofing measures such as hydrophobic coatings or moisture impermeable coatings for the exposed interior wall if bricks are interior grade
3. Verify that the wall tie system was installed under the supervision of a professional engineer
4. Install water management system or re-slope grade to prevent water to pond against structure’s west wall.
5. Verify that foundation of the west wall extends below frost line
6. Repair wall coping brick course
7. Remove vegetation growth from the façade and repair any distress in mortar and brick
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Image</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="Image1.png" alt="Photo 1" /></td>
<td>Photo 1: Lack of apparent waterproofing at top of masonry wall, no parapet cap.</td>
</tr>
<tr>
<td><img src="Image2.png" alt="Photo 2" /></td>
<td>Photo 2: Overall view of west elevation. Varying spacing between post installed wall ties at every level. The wall used to be an interior common wall.</td>
</tr>
<tr>
<td><img src="Image3.png" alt="Photo 3" /></td>
<td>Photo 3: Sloping of grade toward the foundation of the structure directing runoff water against the structure.</td>
</tr>
<tr>
<td>Photo 4: Deteriorated capstone at north facade.</td>
<td></td>
</tr>
<tr>
<td>Photo 5: Vegetation growth at north facade.</td>
<td></td>
</tr>
<tr>
<td>Photo 6: South elevation overall view.</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS
The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated
YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future
RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
204 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | c. 1880 | Historic Status | Contributing |
| No. of Levels | 2 | Historic Name/Use | Exchange Nation Bank |
| Basement (Y/N) | Yes | Current Use | Bar Vino |
| Building Description | 2-story structure with masonry walls. |
| Common Walls | The West wall is likely a common wall |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The building is experiencing brick spalls in a few spots on the upper floor.
2. Tuckpointing has been performed on the building.
3. All exterior doors and windows were replaced in 2016.
4. All floors are concrete.
5. The membrane on the concrete roof was replaced 4 years ago.

Visual Observations
The following are our observations:
1. Cracked masonry joint on north elevation (Photo 1)
2. Previous repointing and brick infills on south elevation (Photo 2)

Discussion
The observed cracked or deteriorated mortar is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.
Recommendations
Based on the observations we recommend the following:
   1. Repoint deteriorated mortar joints
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: Cracked mortar joint on north elevation</td>
</tr>
<tr>
<td>Photo 2: South elevation, previous repointing and brick infills</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element).

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
206-210 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

| Year Built | c. 1880 |
| No. of Levels | 3 |
| Basement (Y/N) | Unknown |
| Building Description | 3-story structure with masonry walls with apparent additions at the south side over its life. A report by MECO Engineering Company, Inc dated May 15, 2014 indicates that the roof framing may be structurally deficient. |
| Common Walls | West wall does not appear to be a common wall based on exterior observations. East wall was not visible therefore it is unknown. |
| Overall Structure Condition | Red |

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

**Visual Observations**
The following are our observations:
1. Peeling paint and isolated brick spalls at north elevation (Photo 1,2)
2. Deteriorated mortar joints near the top of east elevation (Photo 3)
3. Deteriorated mortar joints in east elevation (Photo 5)
4. Deteriorated mortar joints and cracking of south elevation (Photo 6)
5. Bowing of south wall near the top and loose bricks (Photo 7)
6. Severe deterioration of mortar joints at west elevation typically near the base of the wall (Photo 9-12)
7. Severe mortar loss and loose bricks above an infilled opening observed below the exterior deck of the adjacent building (Photo 13)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed isolated shallow brick spalls are generally due to previous repointing of the wall with mortar that is harder than the original mortar. Repointing the wall with harder mortar restricts the bricks from expanding with temperature changes and causes them to spall. Isolated shallow brick spalls are an aesthetic issue only and are not structural concern.

The observed peeling of paint generally indicates improper application of the paint or movement of moisture through the wall. For the latter, the paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.

The observed deterioration of the mortar joints at the south elevation was largely due to improper water management at the roof level. The gutter was observed to be corroded allowing rainwater to run down the south elevation at the observed distress location. It is likely that the bowing at the top of the wall was also due to moisture related distress. This condition presents an overhead fall hazard.

The cracking observed at the south elevation was indicative of possible building/wall movement. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. The possible movement of the wall should be identified in a close-up evaluation.

The extent of the mortar joint deterioration observed at the west wall and top of the south wall was severe. At isolated locations, the mortar section loss extended into the interior wythe of bricks. This condition results in compromised load carrying capacity of the wall and should be evaluated by a professional engineer.

Based on our observations and reported findings of MECO Engineering Company, Inc dated May 15, 2014 that the roof may be structurally deficient warrants the need for a close-up evolution of this structure by a professional structural engineer.

Recommendations
Based on the observations we recommend the following:

1. Monitoring of the brick spalls is recommended. Further brick spalling might warrant brick replacement.
2. Determine if peeling paint is due to improper application or movement of moisture through the wall. For the latter, determine the source of the moisture and remedial actions.
3. Cracking of masonry, extent of south wall severe mortar joint deterioration, south wall bowing, and severe mortar loss at the west elevation warrant an evaluation by a professional structural engineer.
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: Over all view of the north elevation with peeling paint, first floor EIFS façade, 2nd and 3rd painted brick.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Isolated brick spall below 2nd floor windows and peeling paint.</td>
</tr>
<tr>
<td>Photo 3: Deteriorated mortar at the top approximately 4 ft of the east wall.</td>
</tr>
<tr>
<td>Photo 4: South elevation overall view</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Photo 5: Deteriorated mortar joints on east elevation</td>
</tr>
<tr>
<td>Photo 6: Isolated cracking (arrows) and deteriorated joints (rectangle) throughout south elevation.</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 7: Isolated bowing at two locations at the top of south elevation. Some bricks appear to be loose at these locations presenting overhead fall hazard.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 8: West elevation overall view – loose brick at the top of southwest corner</td>
</tr>
<tr>
<td>Photo 9: Overall view of localized severely deteriorated mortar joints on west elevation</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 10: Close up of severely deteriorated mortar joints on west elevation. Pen inserted into the joint to indicate approximate depth.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 11: Isolated location of deep mortar loss at the base of the west elevation wall.</td>
</tr>
<tr>
<td>Photo 12: Severe mortar loss and loose bricks at the base of the west elevation wall.</td>
</tr>
</tbody>
</table>
Photo 13: Severe mortar loss and loose bricks observed under the deck of adjacent structure.
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
212 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown | Historic Status | Non-contributing |
| No. of Levels | 1 | Historic Name/Use | Unknown |
| Basement (Y/N) | Yes | Current Use | Central Bank |
| Building Description | Single-story structure with masonry walls |
| Common Walls | East wall is original to the structure; however, adjacent building could be supported by the wall. West wall unknow based on exterior observations. |
| Overall Structure Condition | Yellow |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing was resealed in 2014.

Visual Observations
The following are our observations:
1. Possible previous repairs on east elevation near the top of the wall (Photo 3)
2. Likely addition to the south of the building (Photo 4)
3. Moving crack previously repaired (Photo 5)
4. Previous infills of doors and windows on south elevation (Photo 6)
5. Deteriorated vertical sealant (Photo 7)
6. Bowing or out-of-plane displacement of wall along crack on east wall (Photo 8)
7. Repointing at isolated locations on east elevation (Photo 9)
8. Damaged clay tile cap on east elevation (Photo 10)
9. Mortar deterioration near downspout of adjacent building (Photo 11)
**STRUCTURAL SURVEY SUMMARY – CONT.**

**Discussion**
The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

The cause of the out-of-plane displacement or bowing observed at the crack along the east wall is unknown. The crack at this location was observed to be previously repointed but has since re-cracked. This indicates that the movement of the wall has likely continued. The out-of-plane movement could result in wall becoming unstable. Further study is required to understand the cause of the brick cracking and the wall displacement.

Cap tiles serve to protect the top of the wall from moisture infiltration. The observed damage of the cap tiles could allow moisture to infiltrate between the wythes of brick and cause accelerated deterioration of brick and mortar assembly. Moisture infiltration into the interior of the building is also possible. In order to protect the wall assembly and interior finishes, the damaged cap tiles should be repaired.

The observed mortar deterioration adjacent to the down spout is likely due to long term exposure to moisture splashing from the downspout. Prolonged exposure to water accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

**Recommendations**
Based on the observations we recommend the following:
1. Evaluate the out-of-plane displacement along the crack of the east wall
2. The construction of the wall and cause of the crack should be determined by a professional engineer. If the crack is due to thermal movement, the creation of a vertical control joint may be necessary. Sealant can be used as a temporary repair but will likely not perform as a long-term solution.
3. Replace deteriorated sealants
4. Replace damaged cap clay tiles
5. Repoint deteriorated mortar joints
<table>
<thead>
<tr>
<th>Photo 1: EIFS on north façade.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: East elevation overall view.</td>
</tr>
<tr>
<td>Photo 3: Possible previous repairs on east elevation near the top of the wall</td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: Likely addition to the south of the building.

Photo 5: Previous repair of a crack. The crack has reappeared since repair indicating a moving crack.

Photo 6: South elevation overall view. Window infills (arrows) and likely addition visible.
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 7: Deteriorated vertical sealant.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 8: Bowing or out-of-plane displacement of wall along crack on east wall. Previous repointing was performed at this location as observed in Photo 9.</td>
</tr>
<tr>
<td>Photo 9: Previous isolated repointing on east elevation.</td>
</tr>
<tr>
<td>Photo 10: Damaged clay tile cap on east elevation.</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Photo 11: Mortar deterioration near downspout of adjacent building</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

- **CMU:** Concrete Masonry Unit
- **CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
- **CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
- **DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
- **DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
- **DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.
- **DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
- **DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
- **EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
- **FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
- **HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.
- **JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.
- **MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.
- **PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
- **REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
- **SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
- **SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
- **SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
- **SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
- **SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
218 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Built</td>
<td>1870</td>
</tr>
<tr>
<td>Historic Status</td>
<td>Contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Guyot Jewelry Store</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing was replaced in 1996.
2. Masonry joints are sandy in some areas on the interior walls.
3. The second-floor back walls were tuck pointed in 1998.

Visual Observations

The following are our observations:
1. North elevation is covered with stucco and stone cladding
2. Cracks in stucco on north elevation (Photo 1)
3. Deteriorated joints in stone cladding on north elevation (Photo 2)
Discussion
The observed isolated cracking in stucco appeared to be hairline in nature. Causes of isolated stucco cracking vary from shrinkage stresses, through movement stresses, to poor workmanship during application. Currently this condition does not present a structural issue, however, with continued exposure to moisture, it is likely that this distress condition will continue to worsen and allow an increased amount of moisture to come in contact with bricks and mortar behind.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the cladding.

Recommendations
Based on the observations we recommend the following:
1. Seal isolated cracks with appropriate caulking material to prevent further moisture infiltration
2. Repoint deteriorated mortar joints
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: Cracked stucco on north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Deteriorated joints between stone cladding above 2nd floor window</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
220 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing is new.
2. The exterior walls have been tuck pointed and have had 2 coats of sealer applied.
3. Structural modifications have been made to the building under supervision of a design professional.

**Visual Observations**
The following are our observations:
1. Isolated brick spalls on north elevation (Photo 1)
2. South masonry wall is covered with paint and stucco (Photo 3)
3. Isolated deteriorated stucco at south elevation (Photo 4)
**Discussion**

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed deterioration of stucco exhibited in spiderweb type cracking is likely due to poor workmanship during stucco application such as adding too much water, incorrect application, or application during extreme temperatures. It appeared that cracks are hairline in nature and currently do not appear to present any structural concern. However, with continued moisture infiltration, it is likely that this distress condition will continue to worsen and allow an increased amount of moisture to come in contact with bricks and mortar behind. To prevent deterioration of structural elements beyond the stucco, pathway of moisture through the stucco should be stopped.

**Recommendations**

Based on the observations we recommend the following:

1. Localized brick replacement of spalled bricks
2. Repairing the deteriorated stucco is recommended. Depending on the extent of stucco deterioration, stucco repairs vary from application of moisture impermeable coatings to full removal and replacement of the distressed stucco.
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1:</th>
<th>Isolated brick spalls on north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2:</td>
<td>East elevation</td>
</tr>
<tr>
<td>Photo 3:</td>
<td>South elevation, masonry wall covered with paint and stucco</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Deteriorated stucco at south elevation</th>
</tr>
</thead>
</table>

![Photo of deteriorated stucco at south elevation](image-url)
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>1</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Fine Mess Boutique</td>
</tr>
<tr>
<td>Building Description</td>
<td>Single-story structure with masonry walls and glass storefront</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
   1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
   1. North masonry wall is concealed (Photo 1)
   2. South wall is painted CMU (Photo 2)
   3. No visual signs of deterioration were observed

Discussion
The visible masonry appears to be in generally good condition.

Recommendations
Based on the observations we recommend the following:
   1. Continued periodic maintenance of the masonry walls, including repointing mortar joints, replacing damaged masonry units, and coating with sealers as necessary
OBSERVATIONS

Photo 1: North elevation, masonry wall is concealed

Photo 2: South elevation, painted CMU wall
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
226 E HIGH ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020  
WPM Proposal No. | 19-2532  
WPM Project No. | D08.20009.00

**GENERAL INFORMATION**

| Year Built | Unknown | Historic Status | Non-contributing  
| No. of Levels | 2 | Historic Name/Use | Unknown  
| Basement (Y/N) | Unknown | Current Use | Tolson Drug  
| Building Description | 2-story structure with masonry walls and EIFS façade at ground level  
| Common Walls | Unknown based on limited access  
| Overall Structure Condition | Yellow

**STRUCTURAL SURVEY SUMMARY**

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received by the building owner or tenant.

**Visual Observations**

The following are our observations:

1. Lower third of north elevation covered with stucco, concealing brick masonry  
2. Loose stucco on west wall (Photo 1)  
3. Loose and deteriorated mortar joints on north elevation (Photo 2)  
4. Loose brick over sidewalk on north elevation (Photo 3)  
5. Brick spalls above opening on west elevation (Photo 5)  
6. Portions of stone foundation appear to have been previously repointed (Photo 6)  
7. Deteriorated mortar joints in stone foundation (Photo 7-8)  
8. Deteriorated mortar joints on west elevation (Photo 9)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The loose stucco and the loose brick present an overhead fall hazard. Additionally, the condition of the stucco will allow moisture to come in contact with the masonry behind it, causing accelerated deterioration of the masonry wall.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed brick spalls and loose and deteriorated mortar joints above windows correlating with the locations of steel lintels could indicate ongoing steel lintel corrosion. As steel corrodes it expands and pushes on adjacent materials and in some cases causes bricks spalls or opening up of mortar joints. This condition requires close up evaluation as steel lintels are load bearing members.

Recommendations
Based on the observations we recommend the following:

1. Remove and replace deteriorated stucco
2. Remove or securely reattach the loose brick
3. Evaluate condition of steel lintels by professional engineer
4. Repoint deteriorated mortar joints
5. Localized brick replacement of spalled bricks
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
<tr>
<td><strong>Photo 1:</strong> Loose stucco on west wall near sidewalk</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
<tr>
<td><strong>Photo 2:</strong> Loose and deteriorated mortar in joints between windows correlating with locations of steel lintels</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
<tr>
<td><strong>Photo 3:</strong> Loose brick over sidewalk</td>
</tr>
<tr>
<td>Photo 4: South elevation overall view</td>
</tr>
<tr>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Photo 5: Brick spalls above opening on south elevation correlating with location of steel lintels</td>
</tr>
<tr>
<td>Photo 6: Previously repointed stone foundation (rectangle) and previously repointed mortar joints over window (arrow)</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 7: Deteriorated mortar joints in stone foundations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 8: Deteriorated mortar joints near down spout</td>
</tr>
<tr>
<td>Photo 9: West elevation overall view</td>
</tr>
<tr>
<td><strong>OBSERVATIONS – CONT.</strong></td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>Photo 10:</strong> Isolated locations of deteriorated mortar joints on west elevation</td>
</tr>
</tbody>
</table>

![Image of a brick wall with a window showing deteriorated mortar joints]
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
232 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The building is experiencing brick spalling and efflorescence.
2. The roofing on the building is 15 years old.

Visual Observations
The following are our observations:
1. The top portion of the north wall appears to have been repointed (Photo 1)
2. Deteriorated mortar joints near windows on north elevation (Photo 2)
3. Brick spalls near base of north wall (Photo 3)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated shallow brick spalls are likely due to increased exposure to moisture from splash-up from sidewalks during rain or previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

Based on the owner survey information, the roofing is 15 years old. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repairs or replacement in the near future.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
2. Localized brick replacement of spalled bricks
3. An evaluation of the roofing system
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: Top portion of the north wall appears to have been repointed</td>
</tr>
<tr>
<td>Photo 2: Deteriorated mortar joints near windows on north elevation</td>
</tr>
<tr>
<td>Photo 3: Brick spalls near base of north wall</td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: South elevation overall view
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
236 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Samuel’s Tuxedo</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the back half of the building is 5 years old. The rest of the roofing is 10 years.

Visual Observations
The following are our observations:

1. Delaminated masonry at tie course directly above painted fascia on north elevation (Photo 1)
2. Previous shoring on top story of south elevation (Photo 3)
3. Deteriorated brick on west elevation. Based on street level observation, it appeared the west elevation was experiencing brick spalls and mortar deterioration (Photo 4)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed delaminated masonry on the north elevation poses a potential future overhead hazard.

The south edge of the roof appeared to be supported by two wood posts near the mid-span. A steel rod passes through the tops of the posts and is anchored through the east and west walls. The east masonry wall appeared bowed at the tie rod anchorage, suggesting that the tie rod force may have exceeded the capacity of the masonry wall. However, the condition could not be adequately observed from street level and should be evaluated by a professional engineer.

The observed mortar and brick deterioration is generally due to the age of the masonry and its exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:

1. Remove delaminated masonry on the north elevation and replacing with new units
2. Evaluation south wall tie rod condition by a professional engineer
3. Evaluation of the deteriorated brick on the west elevation to determine its condition
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: Delaminated masonry above sidewalk</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Wood posts in the middle of the south façade and a tie rod (arrow) connecting east and west walls running through the posts was observed. East masonry wall appeared to be bowing (not visible in photo).</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
</tbody>
</table>
Photo 4: Likely deteriorated brick on west elevation
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

| Year Built | Unknown |
| No. of Levels | 3 |
| Basement (Y/N) | Yes |
| Building Description | 3-story structure |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Yellow |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A crack on the East side of the building was patched many years ago.
2. The building was tuck pointed 25 years ago.
3. The roofing on the building is 20+ years old.
4. There are leaks in the building when wind blows from certain directions.

Visual Observations

The following are our observations:

1. A vertical crack that has been previously filled with sealant and has reopened (Photo 2-3)
2. Deteriorated mortar joints and delaminated concrete on chimney (Photo 4)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
Based on the size of the structure, its general layout and appearance, it is possible that the structural system is not load bearing unreinforced masonry walls. If this is correct, the exterior brick is a veneer brick and does not serve as part of the structural system of the building. Interior assessment would be required to determine its structural system.

The observed mortar and brick cracking is consistent with cracking typically occurring due to the lack of control joints. Control joints are intended to force thermal movement cracking in masonry to occur at predetermined locations. Previous attempts to seal the cracking were observed, however, cracking has since reoccurred. In order to prevent moisture infiltration into the wall, sealant could be installed in the crack. However, sealing of the existing crack will likely not provide a long-term waterproofing solution. A long-term solution would include creating of a control joint in the existing masonry.

The observed mortar deterioration is likely due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Based on the owner survey information, the roofing is 20+ years old. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repairs or replacement in the near future.

Recommendations
Based on the observations we recommend the following:
1. Evaluation of the construction of the wall by a professional engineer
2. Installation of a control joint, if possible
3. Removal and replacement of broken brick units
4. Repointing deteriorated and/or cracked mortar joints
5. Assessment of the roofing system to determine its current condition
6. Assessment of the reported leaks during wind driven rain
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> East elevation overall view.</td>
<td></td>
</tr>
<tr>
<td><strong>Photo 2:</strong> Vertical crack on east elevation, previously filled with sealant</td>
<td></td>
</tr>
<tr>
<td><strong>Photo 3:</strong> Close up of sealed vertical crack on east elevation, crack has reopened</td>
<td></td>
</tr>
<tr>
<td>Photo 4: Deteriorated mortar joints on chimney and delaminated concrete at top of chimney</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION — based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION — based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION — based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>Vacant</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Possible loose coping stone on north elevation (Photo 1)

Discussion
A loose coping stone over the sidewalk presents a potential future overhead hazard.

Recommendations
Based on the observations we recommend the following:
1. A close-up evaluation of the coping stone
OBSERVATIONS

Photo 1: Possible loose coping stone over sidewalk on north elevation
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated
YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future
RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
General Information

Year Built: Unknown  
Historic Status: Non-contributing  
No. of Levels: 2  
Historic Name/Use: Unknown  
Basement (Y/N): Yes  
Current Use: State Farm  
Building Description: 2-story structure with masonry walls  
Common Walls: Unknown based on limited access  
Overall Structure Condition: Yellow

Structural Survey Summary

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the building was replaced 1 month ago.
2. Efflorescence is present in a few places on the limestone foundation walls.
3. The limestone foundation walls have gaps which leak water during heavy rains.
4. The exterior face of the building is covered in stucco.

Visual Observations
The following are our observations:
1. The masonry walls are covered with stucco.

Discussion
The survey response from the building owner indicates that the foundation is leaking water. Prolonged exposure to water will cause deterioration of the foundation, which could result in other structural issues in the building.

Recommendations
Based on the observations we recommend the following:
1. An evaluation of the foundation of the building is recommended to identify the source of the leak and to develop a solution to stop water from entering the structure.
OBSERVATIONS

Photo 1: West elevation overall view
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
310-312 MONROE ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>CFS Engineers</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Deteriorated mortar joints and spalled and deteriorated bricks on east, south, and west elevations (Photo 1, 5, 7)
2. Vertical cracks between windows on east elevation (Photo 2)
3. Loose brick units at cornice on east elevation (Photo 3)
4. Chimney appears to be leaning (Photo 6)
Discussion
The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed mortar and brick cracking is likely due to movement of support system for the masonry wall, such as deflection of steel lintel beams above the windows. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Previous attempts to repoint the cracking were observed, however cracking has since reoccurred. In order to prevent moisture infiltration into the wall, sealant could be installed in the crack. However, sealing of the existing crack will likely not provide a long-term waterproofing solution. A long-term solution would include creating of a control joint in the existing masonry.

The cornice on the east side of the building appeared to be loose. If the cornice becomes detached it can pose a potential overhead hazard on the sidewalk below.

The chimney was observed to be tall and slender and appeared to be leaning to the north. The cause or the origin of the leaning could not be determined from the street level. The tall, slender, and leaning chimney could become unstable during a wind event and should be further evaluated.

Recommendations
Based on the observations we recommend the following:
1. Repointing deteriorated and/or cracked mortar joints
2. Replacement of cracked brick units
3. Installation of a control joints, if possible
4. Localized brick replacement of spalled or deteriorated bricks
5. Periodic monitoring of the brick between the first and second story windows for excessive deflections
6. Close-up evaluation of the cornice on the east elevation and reattachment of any loose members
7. Close-up evaluation of the chimney to determine the cause and extent of the leaning
### Observations

<table>
<thead>
<tr>
<th>Photo 1: Brick spalls near bottom of east wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Vertical cracks originating from window corners on east elevation</td>
</tr>
<tr>
<td>Photo 3: Loose cornice brick units along the full length of east elevation.</td>
</tr>
<tr>
<td>OBSERVATIONS – CONT.</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 7: Deteriorated mortar joints and brick spalls at base of west wall</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Photo" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
Exterior Structural Survey
300 E High / 301 Monroe St

300 E HIGH ST / 301 MONROE ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
---|---
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

| Year Built | 1873 | Historic Status | Contributing |
| No. of Levels | 2 | Historic Name/Use | Cole County Democrat Building |
| Basement (Y/N) | Yes | Current Use | Modern Technologies
Fred Vogel Insurance |

Building Description | 2-story structure with masonry walls
Common Walls | No
Overall Structure Condition | Green

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Isolated deteriorated mortar joints (Photo 3)
2. South elevation is coated with a cementitious material. Minor cracks were observed in the coating near the top of the wall. (Photo 4)
3. Previous repairs including filling of cracks, localized brick replacement, and repointing on east elevation (Photo 6-8)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated cracking in the cementitious coating appeared to be hairline in nature. Causes of isolated cracking vary from shrinkage stresses, through movement stresses, to poor workmanship during application. Currently this condition does not present a structural issue, however, with continued exposure to moisture, it is likely that this distress condition will continue to worsen and allow an increased amount of moisture to come in contact with bricks and mortar behind.

Recommendations
Based on the observations we recommend the following:
   1. Repoint the deteriorated mortar joints
   2. Seal isolated cracks with appropriate sealant to prevent moisture infiltration
# OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="North elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: West elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="West elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Isolated deteriorated mortar joints</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Deteriorated mortar joints" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

| Photo 4: South elevation covered with cementitious coating. Minor cracking of coating at top of wall |
| Photo 5: East elevation |
| Photo 6: Previously repaired crack on east elevation |
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th><img src="image1" alt="Photo 7" /></th>
<th>Photo 7: Previous brick replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Photo 8" /></td>
<td>Photo 8: Previous localized repointing near top of wall on east elevation</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
304 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>1895</th>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Burch-Berendzen Grocer Company</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Spencer Fane LLP Berry Wilson LLC</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Isolated brick spalls and localized mortar joint deterioration on north and south elevations (Photo 2, 12)
2. Vertical crack below window on north elevation (Photo 3)
3. Delaminated bricks on north elevation (Photo 4)
4. Previous localized brick replacement on north elevation (Photo 5)
5. Cracked sill stone on north elevation (Photo 6)
6. The west wall is coated with a cementitious material (Photo 7)
7. The cementitious coating appears to be bowing slightly outward (Photo 8)
8. Cracks and previously repaired cracks in cementitious material on west wall (Photo 9-10)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed mortar and brick cracking is generally due to movement of support system for the masonry wall. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry. Typical modern masonry mortars utilize cement instead of lime resulting in a mortar that is stronger than the mortar used in historic masonry.

As the observed delaminated bricks continue to detach from the wall, they could potentially fall off of the façade and become an overhead hazard.

The observed cracked in the sill stone is generally due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The observed bowing of the cementitious coating appears to be from its original construction. Cracking was not observed around the bowed-out portion of the wall, indicating that it has not moved.

The observed isolated cracking in the cementitious coating appeared to be hairline in nature. Causes of the isolated cracking vary from shrinkage stresses, through movement stresses, to poor workmanship during application. Currently this condition does not currently appear to present a structural issue, however, with continued exposure to moisture, it is likely that this distress condition will continue to worsen and allow an increased amount of moisture to come in contact with bricks and mortar behind.
 STRUCTURAL SURVEY SUMMARY – CONT.

Recommendations
Based on the observations we recommend the following:

1. Repointing deteriorated mortar joints
2. Localized brick replacement of spalled bricks
3. It is recommended that the vertical crack be repointed to prevent water infiltration. Periodic monitoring of the crack is also recommended. If the crack reopens after it is repointed, it should be evaluated by a professional engineer.
4. It is recommended that the delaminated bricks be removed or securely reattached to the wall
5. A close-up evaluation of the cracked sill stones
6. It is recommended that the bowing in the cementitious coating be monitored. If the bowing worsens or cracks begin to develop, it should be evaluated by a professional engineer.
7. Sealing isolated cracks in cementitious coating with appropriate caulking or breathable coating to prevent moisture infiltration is recommended
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: North elevation</th>
<th>Photo 2: Localized deteriorated mortar joints on north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Photo 1: North elevation" /></td>
<td><img src="image2.png" alt="Photo 2: Localized deteriorated mortar joints on north elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Vertical crack below window on north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Photo 3: Vertical crack below window on north elevation" /></td>
</tr>
<tr>
<td>Photo 4: Delaminated bricks on north elevation</td>
</tr>
<tr>
<td>Photo 5: Previous localized brick replacement</td>
</tr>
<tr>
<td>Photo 6: Cracked sill stones</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 7: West elevation coated with cementitious material</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 7" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 8: Slight bowing at base of west wall</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 8" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 9: Cracks in cementitious coating on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 9" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 10: Previously repaired cracks in cementitious coating on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 11: South elevation with infilled openings</td>
</tr>
<tr>
<td>Photo 12: Isolated brick spalls and deteriorated mortar joints on south elevation</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated.

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future.

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted.

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
306 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>3</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>Vacant</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Based on exterior visual observations, the building does not appear to have common walls</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Localized deteriorated mortar joints below windows and on parapet (Photo 2,4)

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: North elevation. The first story is covered with EIFS or stucco.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Localized deteriorated mortar below window</td>
</tr>
<tr>
<td>Photo 3: South elevation</td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: Deteriorated mortar on parapet
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spurs are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Empower Missouri</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td>Blitz, Bardgett &amp; Deutsch</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Red</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

**Visual Observations**
The following are our observations:

1. Cracked lintels and sill stones on north elevation (Photo 2, 5)
2. Mortar joint deterioration on north elevation that increases with height (Photo 3)
3. The cornice on the north elevation was observed to be severely deteriorated with cracks throughout. The left most and right most pilasters under the cornice appear to be leaning outward. (Photo 4)
4. Deteriorated mortar joints around windows on west elevation (Photo 7)
5. Previously repaired vertical crack on west elevation (Photo 7)
6. Potential previous repointing at top of tower in back of building (Photo 9)
7. Previous repairs and deteriorated mortar joints on east elevation (Photo 11, 12)
8. Section of east wall has been painted (Photo 13)
9. Missing parapet caps on east elevation (Photo 14)
Discussion
The observed cracks in the lintels, sill stones, and cornice are generally due to exposure to moisture and repeated freeze-thaw cycles. Some of the delaminated cornice stones currently present an overhead fall hazard. The condition has been communicated to the City of Jefferson on May 22, 2020. As other portions of the wall continue to deteriorate, additional locations of overhead concrete hazard may appear.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Parapet caps serve to protect the top of the wall from moisture infiltration. The observed missing parapet caps could allow moisture to infiltrate between the wythes of brick and cause accelerated deterioration of brick and mortar assembly. Moisture infiltration into the interior of the building is also possible. In order to protect the wall assembly and interior finishes, the missing parapet caps should be replaced.

Recommendations
Based on the observations we recommend the following:

1. A close-up evaluation of the cracked and deteriorated lintels, sill stones, and cornice is recommended. It is recommended that any loose pieces be removed or securely reattached to eliminate the overhead fall hazard.
2. Repointing of deteriorated mortar joints
3. Replacing missing parapet caps
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: North elevation</td>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
<tr>
<td>Photo 2: Cracked lintels above windows</td>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
<tr>
<td>Photo 3: Mortar joint deterioration, increasing with height</td>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

| Photo 4: Severely deteriorated cornice, cracks throughout (Rectangle) |
| Left most and right most pilaster under cornice leaning outward (Arrow) |
| Photo 5: Cracked still stones |
| Photo 6: West elevation |
### Observations – Cont.

<table>
<thead>
<tr>
<th>Photo 7:</th>
<th>Deteriorated mortar at corners of left and right windows on second story, previously repaired vertical crack on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 8:</td>
<td>South elevation</td>
</tr>
<tr>
<td>Photo 9:</td>
<td>Potential repointing at top of tower</td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

<table>
<thead>
<tr>
<th>Photo 10: East elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="East elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 11: Previous repairs (arrows) and deteriorated mortar around window</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Previous repairs" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 12: Deteriorated mortar below chimney</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Deteriorated mortar" /></td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 13: Section of wall by upper staircase has been painted

Photo 14: Missing parapet caps
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELABATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Built</td>
<td>Unknown</td>
</tr>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Current Use</td>
<td>Lathrop Group LLP</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

Visual Observations

The following are our observations:

1. Previously repaired stairstep cracking on north elevation (Photo 2)
2. Previous repointing at top of east elevation (Photo 4)
3. Localized mortar joint deterioration on east elevation (Photo 4-5)
4. First story of south elevation cover with stucco (Photo 6)

Discussion

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.
STRUCTURAL SURVEY SUMMARY – CONT.

**Recommendations**
Based on the observations we recommend the following:

1. Repointing of deteriorated mortar joints
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="North elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Previously repaired stairstep cracking</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Previously repaired stairstep cracking" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: East elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="East elevation" /></td>
</tr>
<tr>
<td><strong>OBSERVATIONS — CONT.</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Photo 4: Previous repointing at top of wall and around windows. Deteriorated mortar joints below previous repointing</td>
</tr>
<tr>
<td>Photo 5: Deteriorated mortar joint below windows on east elevation</td>
</tr>
<tr>
<td>Photo 6: South elevation, first floor covered with stucco</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
231-237 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | 1884 | Historic Status | Contributing |
| No. of Levels | 3 | Historic Name/Use | Monroe House |
| Basement (Y/N) | Unknown | Current Use | Inglish & Monaco PC Husch Blackwell |
| Building Description | 3-story structure with masonry walls |
| Common Walls | No |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Previously sealed cracks in what appeared to be either EIFS or stucco on west elevation (Photo 4)
2. Unsealed cracks in EIFS on west elevation (Photo 5)
3. The masonry appeared to be in generally good condition

Discussion
The observed deterioration of EIFS/stucco exhibited in an irregular pattern cracking is likely due to poor workmanship during EIFS base and/or finish coat application such as adding too much water, incorrect application, or application during extreme temperatures. However, exact cause of the observed distress could not be identified during the visual assessment. In order to determine the cause of the observed distress and extent of moisture infiltration, infrared scanning of the exterior coupled with exploratory openings should be performed.
STRUCTURAL SURVEY SUMMARY – CONT.

Recommendations
Based on the observations we recommend the following:

1. Perform additional study to determine the cause and extent of the observed façade system deterioration and propose adequate repair approach
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: East elevation overview</td>
</tr>
<tr>
<td>Photo 2: North elevation overall view</td>
</tr>
<tr>
<td>Photo 3: West elevation overall view</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Previously sealed cracks in EIFS on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: Open cracks in EIFS on west elevation</td>
</tr>
<tr>
<td>Photo 6: South elevation overall view</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS
The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
Deterioration: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
225-227 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Historic Status</th>
<th>Historic Name/Use</th>
<th>Overall Structure Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>Contributing</td>
<td>Key Loan Company</td>
<td>Yellow</td>
</tr>
<tr>
<td>No. of Levels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td></td>
<td>Current Use</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>Vacant – Former Saffees</td>
<td></td>
</tr>
</tbody>
</table>

BUILDING DESCRIPTION

- 2-story structure with masonry walls

Common Walls

- Unknown based on limited access

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

Visual Observations

The following are our observations:

1. North elevation and portions of the south and east elevations are covered with stucco or EIFS, concealing the masonry walls (Photo 1, 5, 7)
2. Missing mortar between cap stones (Photo 2)
3. Isolated deteriorated mortar joints (Photo 3)
4. Missing flashing on east wall (Photo 7)
5. Cracks on east elevation (Photo 8)
6. Deteriorated sealant at end of CMU wall (Photo 9)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
Cap stones serve to protect the top of the wall from moisture infiltration. The observed missing mortar could allow moisture to infiltrate between the wythes of brick and cause accelerated deterioration of brick and mortar assembly. Moisture infiltration into the interior of the building is also possible. In order to protect the wall assembly and interior finishes, the mortar should be repaired.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed deterioration of EIFS/stucco exhibited in an irregular pattern cracking is likely due to poor workmanship during EIFS base and/or finish coat application such as adding too much water, incorrect application, or application during extreme temperatures. However, exact cause of the observed distress could not be identified during the visual assessment. In order to determine the cause of the observed distress and extent of moisture infiltration, infrared scanning of the exterior coupled with exploratory openings should be performed.

Recommendations
Based on the observations we recommend the following:

1. Repair mortar at cap stones
2. Repoint deteriorated mortar joints
3. Replace missing flashing
4. Perform additional study to determine the cause and extent of the observed EIFS/stucco deterioration and propose adequate repair approach
5. Replace deteriorated sealant at end of CMU wall
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1: South elevation overall view</strong></td>
<td><img src="image1.png" alt="Photo 1" /></td>
</tr>
<tr>
<td><strong>Photo 2: Missing mortar between cap stones</strong></td>
<td><img src="image2.png" alt="Photo 2" /></td>
</tr>
<tr>
<td><strong>Photo 3: Isolated deteriorated mortar joints</strong></td>
<td><img src="image3.png" alt="Photo 3" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: West elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: North elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.png" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 6: East elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>PHOTO</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td><img src="image1" alt="Photo 7: Missing flashing on east wall" /></td>
</tr>
<tr>
<td><img src="image2" alt="Photo 8: Cracks on east elevation" /></td>
</tr>
<tr>
<td><img src="image3" alt="Photo 9: Deteriorated sealant at end of CMU wall" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveyed reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
223 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

| Year Built | 1900 | Historic Status | Contributing |
| No. of Levels | 3 | Historic Name/Use | Dallmeyer’s Jewelry, Inc. |
| Basement (Y/N) | No | Current Use | Ana Marie’s |
| Building Description | 3-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing of the building is 8 years old.

**Visual Observations**

The following are our observations:

1. Top of south wall appears to have been previously repointed (Photo 2)
2. Isolated mortar joint deterioration on west elevation (Photo 4)

**Discussion**

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

**Recommendations**

Based on the observations we recommend the following:

1. Repointing deteriorated mortar joints
OBSERVATIONS

Photo 1: South elevation overall view.

Photo 2: Top of south wall appears to have been previously repointed.

Photo 3: North elevation overall view.
| Photo 4: Isolated mortar joint deterioration on the west elevation |
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
221 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

| Year Built | 1900 |
| No. of Levels | 3 |
| Basement (Y/N) | Unknown |
| Building Description | 3-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Previous repointing of the parapet and below the third story windows on the south elevation (Photo 1)
2. Deteriorated mortar joints at base of south wall near sidewalk (Photo 2)

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th>Photo 1: South elevation overall view. Previous repointing of the parapet and below the third story windows.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Photo 2: Deteriorated mortar joints at base of wall near sidewalk.</td>
</tr>
<tr>
<td></td>
<td>Photo 3: North elevation overall view.</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
215 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>J. Pfenny’s Sports Grill &amp; Pub</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Red</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Likely ongoing construction activities at the building (Photo 2)
2. Isolated spalled bricks at top of the south elevation wall (Photo 3)
3. Surface corrosion of exposed steel beams (Photo 4)
4. Isolated locations of out-of-plane displacement and cracking on north wall (Photo 6-8)
5. Downspout discharges adjacent to foundation wall (Photo 9)
6. Isolated cracking of wall on east elevation (Photo 11)
7. Missing grout and isolated damage on east wall cap tiles (Photo 12)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed out-of-plane displacement and cracking on the north wall appeared to correlate with the location of lintels over the windows. Based on this observation, it is likely that the lintels (typically steel members) are corroding inside the wall. Corrosion is an expansive chemical process that could be resulting in pushing on the outer wythe of brick resulting in cracking and localized bowing of the wall. This condition currently presents a significant overhead fall hazard – this was communicated to the City of Jefferson on May 22, 2020.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause of the observed spalling could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue; however, the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

Cap tiles serve to protect the top of the wall from moisture infiltration. The observed isolated damage of the cap tiles and missing mortar between cap tiles could allow moisture to infiltrate between the wythes of brick and cause accelerated deterioration of brick and mortar assembly. Moisture infiltration into the interior of the building is also possible. In order to protect the wall assembly and interior finishes, the damaged cap tiles should be replaced and mortar repaired.

Locating downspouts directly adjacent to the foundation or foundation wall leads to accelerated deterioration of the exposed mortar joints and bricks. The water could also accumulate adjacent to basement walls exerting large lateral pressure on the wall causing out-of-plane displacement.

The observed mortar cracking is typically due to movement of support system for the masonry wall, such as deflection of steel lintels or settlement of foundation framing. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. In order to prevent moisture infiltration into the wall, it is possible to repair the cracks with a polymer modified mortar mix with increased crack bridging properties. If the condition is not addressed, it may lead to increased moisture infiltration and possible masonry shifting. If the cracking is caused by movement of the structural frame, future movement may result in re-cracking of any repaired mortar.

Recommendations
Based on the observations we recommend the following:

1. Close-up investigation of the cause of the observed isolated out-of-plane movement and cracking of the north elevation wall and follow up repair recommendations by a professional structural engineer
2. Localized replacement of spalled bricks
3. Clean and coat exposed steel beams
4. Reroute downspouts or extend the downspout leaders to discharge water away from the building’s foundation
5. Repair cracked masonry mortar joints
OBSERVATIONS

Photo 1: South elevation overall view.

Photo 2: South wall presumably undergoing repairs.

Photo 3: Isolated spalled bricks at top of the wall.
| Photo 4: Surface corrosion on exposed steel beams |
| Photo 5: North elevation overall view (left of arrow). |

Photo 6: Isolated out-of-plane displacement and cracking on north wall — typically located at lintels beam. This condition presents an overhead fall hazard and was communicated to the City of Jefferson on 5/22/20.
### OBSERVATIONS – CONT.

<p>| Photo 7: Displaced bricks above windows on north wall. |
| Photo 8: Out-of-place displacement of bricks above windows on north wall. |
| Photo 9: Water down spout discharge located next to foundation. |</p>
<table>
<thead>
<tr>
<th>OBSERVATIONS – CONT.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 10:</td>
<td>East elevation overall view.</td>
</tr>
<tr>
<td>Photo 11:</td>
<td>Isolated vertical and stepping cracks on east wall.</td>
</tr>
<tr>
<td>Photo 12:</td>
<td>Missing grout between parapet cap tiles.</td>
</tr>
<tr>
<td></td>
<td>Isolated damage to cap tiles (arrow)</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS
The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintigration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
211 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>3</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>The Snob Shop Exchange</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Likely efflorescence observed at the parapet (Photo 1)
2. Likely previous masonry repairs above windows on south elevation (Photo 2)
3. No visual signs of deterioration were observed

Discussion
Efflorescence is caused by water flowing through masonry inducing the migration of water-soluble salts present in brick, mortar, backing or soil. These salts deposit on the exterior of the masonry creating white powdery surface coating. The observed likely previous repairs above the windows were observed at the same half of the structure as the efflorescence indicating that moisture is likely present within the wall.
STRUCTURAL SURVEY SUMMARY

Recommendations

Based on the observations we recommend the following:

1. Determine source of moisture that is causing efflorescence and take remedial actions to stop the moisture
2. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> South elevation overall view. Likely efflorescence observed near the parapet.</td>
</tr>
<tr>
<td><strong>Photo 2:</strong> Likely previous masonry repair above windows below the observed efflorescence.</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

---

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
209 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

Year Built Unknown
Historic Status Non-contributing
No. of Levels 2
Historic Name/Use Unknown
Basement (Y/N) Unknown
Current Use High Street Pub
Building Description 2-story structure with masonry walls
Common Walls Unknown based on limited access
Overall Structure Condition Green

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Loose wood trim on cornice (Photo 2)
2. Previously repaired brick below second story windows (Photo 3)

Discussion
Even though it appears to be relatively light weight, the loose wood trim on the cornice is a potential overhead hazard if it falls off the building.

Recommendations
Based on the observations we recommend the following:
1. Remove or securely reattach the loose wood trim to the cornice
2. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Loose wood trim on cornice</td>
</tr>
<tr>
<td>Photo 3: Masonry below windows appear to have been repaired previously</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated
YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future
RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
207 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date        07/15/2020
WPM Proposal No.    19-2532
WPM Project No.     D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Historic Status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Built</td>
<td>1884</td>
<td>Non-contributing</td>
<td></td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Midwest Travel</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Midwest Travel</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Isolated mortar joint deterioration on the south elevation (Photo 2)
2. Loose piece of wood on cornice (Photo 2)
3. Missing wood corbel and deteriorated wood above storefront (Photo 3)

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The loose and deteriorated wood on the cornice and above the storefront are a potential overhead hazard if they become loose and fall off the building.
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Removing or securely reattaching any loose pieces of wood
<table>
<thead>
<tr>
<th>Photo 1: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Isolated mortar joint deterioration and loose piece of wood on cornice</td>
</tr>
<tr>
<td>Photo 3: Missing wood corbel and deteriorating wood above storefront window</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
205 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown | Historic Status | Non-contributing |
| No. of Levels | 1 | Historic Name/Use | Unknown |
| Basement (Y/N) | Unknown | Current Use | Unknown |
| Building Description | Single-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Corroded steel lintel above storefront on south elevation (Photo 2)
2. Potentially out of plumb wall on south elevation (Photo 3)

Discussion
The corroded steel lintel does not appear to be deflection. The corrosion appears to be surface corrosion without any significant section loss at this time.

The south wall appears to be slightly out of plumb with the neighboring walls. No additional signs of movement such as cracking, increased separation between neighboring walls, or brick spalls were observed. It is possible that the wall was constructed slightly out of plumb.
Recommendations

Based on the observations we recommend the following:

1. The open mortar joints at the lintel will continue to be a source of water intrusion and the exposed lintel flange will require regular cleaning and painting to address corrosion. We recommend that the owner implement a permanent solution to prevent water intrusion and protect the lintel from the weather. In the interim, it is recommended to clean any visible corrosion from the lintel and protect the exposed metal with an appropriate paint. If the gap above the lintel is not intended as a weep for the wall, then raking back the bed joint at the lintel and placing an appropriate sealant may be an acceptable short-term solution. It is also recommended to monitor the lintel for signs of continued corrosion such as staining or deflection. If continued signs of corrosion are observed, the lintel should be evaluated by a professional engineer.

2. Monitor the south wall for signs of movement, such as cracking, increased separation between neighboring walls, or brick spalls. If signs of movement are observed, the wall should be evaluated by a professional engineer.
### OBSERVATIONS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> South elevation overall view</td>
<td></td>
</tr>
<tr>
<td><img src="image1" alt="South elevation overall view" /></td>
<td></td>
</tr>
<tr>
<td><strong>Photo 2:</strong> Corroded steel lintel</td>
<td></td>
</tr>
<tr>
<td><img src="image2" alt="Corroded steel lintel" /></td>
<td></td>
</tr>
<tr>
<td><strong>Photo 3:</strong> Potentially out-of-plumb wall</td>
<td></td>
</tr>
<tr>
<td><img src="image3" alt="Potentially out-of-plumb wall" /></td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
Exterior Structural Survey
201-203 E High St

201-203 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020
WPM Proposal No.: 19-2532
WPM Project No.: D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Historic Status</th>
<th>Overall Structure Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>c. 1840</td>
<td>Contributing</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of Levels</th>
<th>Historic Name/Use</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Missouri State Optical</td>
<td>Cook, Vetter, Doerhoff &amp; Landwehr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basement (Y/N)</th>
<th>Building Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>2-story structure with masonry walls. The NR Nomination mentions that the street level story was badly eroded, but it has likely been since restored.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Common Walls</th>
<th>Overall Structure Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown based on limited access</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant. During the site observation it was reported that a survey was filled out, however, this information was not available for Walter P Moore review.

Visual Observations
The following are our observations:
1. Previously repaired crack on south elevation (Photo 2)
2. Sections of the building appear to have been previously repointed (Photo 3)
3. Minor crack in stone lintel on west elevation (Photo 5)
4. Spalls in sill stone on west elevation (Photo 6)

Discussion
The observed crack and spalls in the stone lintel and sill stone are likely due to exposure to moisture and repeated freeze-thaw cycles. As they continue to crack and deteriorate, pieces can spall off, creating an overhead hazard.
STRUCTURAL SURVEY SUMMARY – CONT.

Recommendations
Based on the observations we recommend the following:

1. An evaluation of the stone lintels and sill stones is recommended to identify any loose pieces, cracks and determine the repairs required. Loose pieces should be removed or securely reattached to the building.

2. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary.
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th>Photo 1: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image1" alt="Photo 1: South elevation overall view" /></td>
</tr>
<tr>
<td>Photo 2:</td>
<td>Previously repaired crack on south elevation</td>
</tr>
<tr>
<td>Photo 3:</td>
<td>Previously repointing below windows</td>
</tr>
<tr>
<td></td>
<td><img src="image2" alt="Photo 2: Previously repaired crack on south elevation" /></td>
</tr>
<tr>
<td></td>
<td><img src="image3" alt="Photo 3: Previously repointing below windows" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: West elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Minor crack in stone lintel</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 6: Spalls in sill stone on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
229 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION
<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>3</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Use</td>
<td>Brent Hemphill &amp; Associates</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY
Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. Bricks have been replaced and the walls have been sealed several times.
2. The roofing on the building is 12 years old.

Visual Observations
The following are our observations:
1. No visual signs of deterioration were observed.

Discussion
The masonry appears to be in generally good condition. Based on the reported owner survey information and observations made on site, perioding maintenance of the structure has been performed over the years.

Recommendations
Based on the observations we recommend the following:
1. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary.
| OBSERVATIONS |  |
|--------------|  |
| Photo 1: West elevation overall view |  |
| Photo 2: Repointed mortar joints at the base of west elevation |  |
| Photo 3: Mortar joints appears to be in good condition |  |
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
227 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

Year Built Unknown
Historic Status Non-contributing
No. of Levels 3
Historic Name/Use Unknown
Basement (Y/N) Unknown
Current Use Bandre Hunt & Snider, LLC
Building Description 3-story structure with masonry walls
Common Walls Unknown based on limited access
Overall Structure Condition Green

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
  1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
  1. Exposed lintel beam (Photo 2)

Discussion
The masonry appeared to be in generally good condition.

Recommendations
Based on the observations we recommend the following:
  1. Seal open joint exposing steel lintel to prevent moisture infiltration
  2. Continue periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> West elevation overall view</td>
</tr>
<tr>
<td><strong>Photo 2:</strong> Exposed lintel beam, could lead to corrosion of lintel</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

spall: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
225 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Vacant</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
   1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
   1. Vegetation growth and mortar deterioration at top of west elevation (Photo 2)
   2. Isolated brick spalls (Photo 3)
   3. Cracked sill stone (Photo 4)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed vegetation growth on the brick wall is detrimental to its condition. The method by which the vegetation growth attaches to the brick and mortar is causing mechanical abrasive distress to the brick and mortar. Additionally, the root system holds water that causes further chemical deterioration of bricks and mortar. Vegetation growth is typically an indicator of moisture presence in the wall. Based on the location of the vegetation – parapet wall, it is possible that the source of moisture is through the existing parapet cap.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed crack in the sill stone is generally due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

Recommendations
Based on the observations we recommend the following:

1. Remove any vegetation growth from the façade and repair any distress to mortar or brick
2. Review parapet cap for sources of leaks leading to observed vegetation growth
3. Repoint deteriorated mortar joints
4. Localized brick replacement of spalled bricks
5. Evaluate the cracked sill stone to identify any loose pieces and remove or securely reattach them
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: West elevation overall view.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Vegetation growth and mortar deterioration at top of west elevation</td>
</tr>
<tr>
<td>Photo 3: Isolated brick spalls</td>
</tr>
</tbody>
</table>

---

Exterior Structural Survey
225 Madison St
<table>
<thead>
<tr>
<th>Photo 4: Cracked sill stone</th>
</tr>
</thead>
</table>

Exterior Structural Survey
225 Madison St
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>No</td>
<td>Current Use</td>
<td>Heartland Credit Union Association</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Red</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. Minor roofing repairs were done around 2004.

Visual Observations
The following are our observations:
1. Deteriorated mortar joints and missing mortar at top of west elevation (Photo 2)
2. Parapets on north and west elevations appear to be leaning (Photo 3, 5)
3. Cap stone appears to be missing/out-of-sight/fallen on west elevation (Photo 3)
4. Previous repairs adjacent to second story windows (Photo 4)
5. Previous infills above windows on north elevation (Photo 6)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at downspouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Cap stones serve to protect the top of the wall from moisture infiltration. The observed missing cap stone could allow moisture to infiltrate between the wythes of brick and cause accelerated deterioration of brick and mortar assembly. Moisture infiltration into the interior of the building is also possible. In order to protect the wall assembly and interior finishes, the cap stone should be replaced.

The cause of the observe parapet wall lean is unknown based on the visual assessment from the street. However, combination of mortar joint deterioration and the possible missing cap stones will continue to allow moisture infiltration causing the parapet walls to lean further. As they continue to degrade and lean, the parapet and its bricks pose an overhead hazard to the sidewalk below.

Recommendations
Based on the observations we recommend the following:
1. A close-up evaluation of the leaning parapets by a professional engineer
2. Repoint deteriorated mortar joints
3. Replace/repair the cap stone at top of parapet
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: West elevation overall view</td>
<td></td>
</tr>
<tr>
<td>Photo 2: Deteriorated mortar joints and missing mortar at top of west elevation</td>
<td></td>
</tr>
<tr>
<td>Photo 3: Parapet on west appears to be leaning east (high priority item reported to the City of Jefferson on 5/22/2020). Capstone appears to be missing, cannot be seen, or has fallen onto the roof due to leaning of the parapet.</td>
<td></td>
</tr>
<tr>
<td>Observations – Cont.</td>
<td>Photo 4: Likely previous repairs adjacent to upper half of second story windows</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Photo 5: Parapet on north elevation appears to be leaning outward</td>
</tr>
<tr>
<td></td>
<td>Photo 6: North elevation overall view. Previous infill above windows</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

- **CMU**: Concrete Masonry Unit
- **CONCRETE**: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
- **CORROSION**: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
- **DEFLECTION**: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
- **DELAMINATION**: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
- **DETERIORATION**: Disintegration or chemical decomposition of a material during service exposure.
- **DIAGONAL CRACK**: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
- **DURABILITY**: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
- **EFFLORESCENCE**: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
- **FAÇADE**: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
- **HAIRLINE CRACKING**: Small cracks of random pattern in an exposed concrete surface.
- **JOINT SEALANT**: Compressible material used to exclude water and solid foreign material from joints.
- **MAINTENANCE**: Taking periodic actions that will either prevent or delay damage or deterioration or both.
- **PEELING**: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
- **REINFORCEMENT**: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
- **SCALING**: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
- **SERVICE LIFE**: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
- **SHRINKAGE CRACKING**: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
- **Soffit**: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
- **SPALL**: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
221 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | 1890 | Historic Status | Contributing |
| No. of Levels | 1 | Historic Name/Use | Towne Grill |
| Basement (Y/N) | Unknown | Current Use | Gumbo Bottoms Ale House |
| Building Description | Single-story structure with masonry walls |
| Common Walls | Common wall likely on south side. |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Masonry on west elevation is concealed (Photo 1)
2. East elevation is constructed from CMU blocks (Photo 2)
3. No visual signs of masonry deterioration were observed

Discussion
The observed visible masonry appeared to be in generally good condition.

Recommendations
Based on the observations we recommend the following:
1. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged units, and coating with sealers as necessary
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: West elevation overall view, masonry is concealed</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: East elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
219 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown | Historic Status | Non-contributing |
| No. of Levels | 1 | Historic Name/Use | Unknown |
| Basement (Y/N) | Yes | Current Use | Sabaai-Sabaai Thai Cuisine |
| Building Description | Single-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Yellow |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. There is efflorescence present in the basement.
2. The roofing on the building is 20 years old.
3. The basement leaks when it rains.
4. Metal jacks have been added to the basement to support the kitchen floor and footings have been added in the basement. These alterations were not performed under the supervision of a professional engineer.

Visual Observations
The following are our observations:
1. Loose and deteriorated wood on soffit on west elevation (Photo 2-3)
2. Previous masonry repair at top of north wall (Photo 4)
3. East elevation is covered in EIFS (Photo 5)
4. Signs of water intrusion behind EIFS on east elevation (Photo 6)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The owner survey indicated that metal jacks have been added to support the kitchen floor and footings have been added to the basement. Any structural modifications to a building should be made under the supervision of a professional engineer.

The owner survey indicated that the roofing is 20 years old. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repairs or replacement. Roof leaks are likely the source of water intrusion at wood soffit on the west elevation and behind EIFS on the east elevation.

The observed loose pieces of wood on the soffit can become an overhead hazard if they become loose and fall off the building.

All other observations relate to the owner provided information indicating that the structure is not watertight and therefore moisture infiltration related distress is likely.

Recommendations
Based on the observations we recommend the following:
1. Evaluation of any structural modification to the building by a professional engineer
2. Evaluation of the roofing system to determine if it needs repair or replacement
3. Evaluation of building to investigate and find a solution to any known leaks
4. Remove or securely reattach any loose pieces of wood on the soffit
<table>
<thead>
<tr>
<th>Photo 1: West elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Hole in wood soffit, likely due to long-term roof leak. Roof leaks may also be a source of possible moisture intrusion into masonry wall.</td>
</tr>
<tr>
<td>Photo 3: Loose and deteriorated wood framing</td>
</tr>
<tr>
<td>Photo 4: North elevation overall view, previous repair at top of wall</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Photo 5: East elevation overall view covered with EIFS façade</td>
</tr>
<tr>
<td>Photo 6: Deflected EIFS over door, likely sign of water intrusion behind EIFS façade</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
210 COMMERCIAL WAY
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Bones Restaurant</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown</td>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Deteriorated mortar joints (Photo 2-3, 6)
2. Isolated shallow brick spalls (Photo 4)
3. Stairstep crack above window on north elevation (Photo 5)
4. Deteriorated concrete foundation (Photo 7)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at splash-up at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed deterioration of the concrete foundation is likely due to exposure to moisture. Further evaluation of the foundation is recommended to determine the cause of the distress.

The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry

Recommendations
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Isolated brick replacement of spalled bricks
3. A close-up evaluation of the concrete foundation
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> North elevation overall view</td>
<td></td>
</tr>
<tr>
<td><strong>Photo 2:</strong> Deteriorated mortar joints above the third story windows (rectangle) and missing mortar between top row of bricks (arrow)</td>
<td></td>
</tr>
<tr>
<td><strong>Photo 3:</strong> Deteriorated mortar in stone foundation</td>
<td></td>
</tr>
<tr>
<td>Photo 4: Isolated shallow brick spalls</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Photo 5: Stairstep crack above window on north elevation</td>
<td></td>
</tr>
<tr>
<td>Photo 6: Deteriorated and missing mortar at west elevation of the three-story portion of the structure</td>
<td></td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 7: Deteriorated concrete foundation
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
220 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Capital Region Physicians</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response as not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. East elevation appears to have been recently repointed (Photo 2)
2. Isolated mortar joint deterioration on north, west, and south elevations (Photo 4, 8)
3. Stairstep crack above basement window on north elevation (Photo 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
2. Repointing of the crack to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: East elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="East elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: East elevation appears to have been recently repointed</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="East elevation repointed" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="North elevation" /></td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: Deteriorated mortar joints on north and west elevations

Photo 5: Stairstep cracking above basement window north elevation

Photo 6: West elevation
## OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 7: South elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="South elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 8: Deteriorated mortar joints below third story windows on south elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Deteriorated mortar joints" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>3</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Use</td>
<td>Stifel</td>
</tr>
<tr>
<td></td>
<td>Larry’s Barber Shop</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The basement has rock foundations, which are sometimes damp.
2. Masonry joints are sandy.
3. The top story has racked door/window frames and deflection in the floor.
4. The roofing on the building is 30 years old.
5. Some roof joists have been repaired.
6. The building was tuck pointed in 2019.
7. A few steel beams may have been added to the basement 60 or 70 years ago.

Visual Observations
The following are our observations:

1. First story of east elevation is covered with stucco (Photo 1)
2. Cracks in stucco on east elevation (Photo 2)
3. Missing mortar under third story windowsill on east elevation (Photo 3)
4. Isolated mortar joint deterioration on west elevation (Photo 5)
Discussion
The observed isolated cracking in stucco appeared to be hairline in nature. Causes of isolated stucco cracking vary from shrinkage stresses, through movement stresses, to poor workmanship during application. Currently this condition does not present a structural issue, however, with continued exposure to moisture, it is likely that this distress condition will continue to worsen and allow an increased amount of moisture to come in contact with bricks and mortar behind the stucco.

Even though the exterior observations did not indicate significant structural deficiencies, based on the owner reported interior observations, such as damp foundations, sandy masonry joints, racked doorframes, deflecting floor, previously repaired joists, etc., further assessment of the interior of the structure is recommended.

Additionally, based on the owner survey information, the roofing is approximately 30 years old. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repairs or replacement in the near future.

Recommendations
Based on the observations we recommend the following:
   1. Seal isolated cracks in stucco with appropriate sealant material to prevent further moisture infiltration
   2. Repoint missing or deteriorated mortar joints
   3. An evaluation of the interior of the structure
   4. An evaluation of the roofing system
### OBSERVATIONS

| Photo 1: East elevation, first story covered in stucco |
| Photo 2: Cracks in stucco |
| Photo 3: Missing mortar under third story windowsill |
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: West elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="West elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Isolated mortar joint deterioration below window on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.png" alt="Mortar joint deterioration" /></td>
</tr>
</tbody>
</table>

- Photo 4: West elevation
- Photo 5: Isolated mortar joint deterioration below window on west elevation
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Stokes Electric</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. Masonry joints are sandy.
2. The roofing on the building is 30 years old.
3. There are cracks in the interior finishes.
4. The building was tuck pointed in 2019.

**Visual Observations**

The following are our observations:

1. Left storefront capital is detached from building (Photo 2)
2. No visual signs of masonry deterioration were observed

**Discussion**

The detached storefront is a potential overhead fall hazard.

Based on the owner reported interior observations, such as sandy joints and cracks in the interior finishes, further assessment of the interior of the structure is recommended. Additionally, the roofing is approximately 30 years old. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repairs or replacement in the near future.
STRUCTURAL SURVEY SUMMARY – CONT.

Recommendations
Based on the observations we recommend the following:
1. Remove or securely reattach any loose pieces of the storefront
2. An evaluation of the interior of the structure
3. An evaluation of the roofing system
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1: East elevation</strong></td>
</tr>
<tr>
<td><img src="image1" alt="East elevation photo" /></td>
</tr>
<tr>
<td><strong>Photo 2: Left storefront capital is detached from building</strong></td>
</tr>
<tr>
<td><img src="image2" alt="Capital detachment photo" /></td>
</tr>
<tr>
<td><strong>Photo 3: West elevation</strong></td>
</tr>
<tr>
<td><img src="image3" alt="West elevation photo" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

---

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
228 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020
WPM Proposal No.: 19-2532
WPM Project No.: D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown | Historic Status | Non-contributing |
| No. of Levels | 3 | Historic Name/Use | Unknown |
| Basement (Y/N) | Yes | Current Use | Central Bank |
| Building Description | 3-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing was replaced around 2017.
2. Floors are saggy. They have been evaluated by a structural engineer for stability and safety.

Visual Observations
The following are our observations:
1. Minor crack in sill stone on east elevation (Photo 2)
2. Potential previous repointing on east elevation (Photo 3)
3. Isolated brick spall on east elevation (Photo 4)
4. Previous brick infills on north and west elevations (Photo 6, 7)
5. Previously repaired stairstep crack on north elevation (Photo 7)

Discussion
The observed crack in the sill stone is generally due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.
STRUCTURAL SURVEY SUMMARY – CONT.

Recommendations
Based on the observations we recommend the following:
1. Monitor crack in still stone for further deterioration
2. Localized brick replacement of spalled ricks
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
<tr>
<td>Photo 1: East elevation, painted brick</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
<tr>
<td>Photo 2: Minor crack in sill stone</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
<tr>
<td>Photo 3: Potential previous repointing</td>
</tr>
<tr>
<td>Photo 4: Isolated brick spall on east elevation</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Photo 5: North and west elevations</td>
</tr>
<tr>
<td>Photo 6: Previous infill on west elevation</td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

<table>
<thead>
<tr>
<th>Photo 7: Previously repaired crack (arrow) and infill (rectangle) above window on north elevation</th>
</tr>
</thead>
</table>

![Photo of the wall with a crack and infill]
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintuation or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
238 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020
WPM Proposal No.: 19-2532
WPM Project No.: D08.20009.00

GENERAL INFORMATION

| Year Built | 1917 | Historic Status | Contributing |
| No. of Levels | 7 | Historic Name/Use | Central Trust Building |
| Basement (Y/N) | Yes | Current Use | Central Trust Building |
| Building Description | 7-story structure with masonry walls |
| Common Walls | Common walls are not typical for framed buildings |
| Overall Structure Condition | Yellow |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing on the building was replaced in 2001.

Visual Observations
The following are our observations:
1. Based on the height of the structure and layout of interior walls observed through the windows, it does not appear that the structural framing consists of load-bearing masonry walls. The structure appears to be steel framed with masonry infill walls and façade.
2. Deteriorated mortar joints between the top of the second story windows and the third story cornice on the east elevation (Photo 2)
3. Cracks in third story cornice on east and south elevations (Photo 3)
4. Mortar joint deterioration on west elevation (Photo 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed cracks in the cornice are generally due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

Recommendations
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Remove or securely reattach any loose pieces of the third story cornice on the east and south elevations
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: East elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Photo 1: East elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Deteriorated mortar joints between top of second story windows and third story cornice on the east elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Photo 2: Deteriorated mortar joints" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Cracks in third story cornice at several locations on the east and south elevations</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Photo 3: Cracks in third story cornice" /></td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: South elevation

Photo 5: West elevation, mortar joint deterioration
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
**131 E HIGH ST**  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

### GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Goller &amp; Feather Turnbull &amp; Stark, P.C.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building Description</th>
<th>3-story structure with masonry walls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
</tbody>
</table>

**Overall Structure Condition**  
Green

### STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**  
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:  
1. A survey response was not received from the building owner or tenant.

**Visual Observations**  
The following are our observations:  
1. The south elevation is covered in stucco (Photo 1)

**Discussion**  
The south wall is covered in stucco and the remaining masonry walls were not observable from the street level.

**Recommendations**  
Based on the observations we recommend the following:  
1. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary  
2. Continued periodic maintenance of stucco, including maintaining control joint sealant and finish coatings
OBSERVATIONS

Photo 1: South elevation covered in stucco
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
129 E HIGH ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

GENERAL INFORMATION

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Built</td>
<td>1850</td>
<td>Historic Status</td>
<td>Contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Coach Light Flowers and Gifts</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Sweet Smoke BBQ</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the building is 30 years old.
2. Masonry joints are sandy.
3. The building has been tuck pointed.

Visual Observations

The following are our observations:

1. The south masonry wall has been painted (Photo 1)
2. The north elevation appeared to have been previously repointed (Photo 2)
3. Minor brick spalls on north elevation (Photo 2)
4. Minor mortar joint deterioration (Photo 2)
**STRUCTURAL SURVEY SUMMARY – CONT.**

**Discussion**
The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Based on the owner survey information, the roofing is 30 years old. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repairs or replacement in the near future.

**Recommendations**
Based on the observations we recommend the following:
1. Localized brick replacement of spalled bricks
2. Repoint deteriorated mortar joints
3. Perform evaluation of the roofing system
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> South elevation, painted masonry</td>
</tr>
<tr>
<td><strong>Photo 2:</strong> North elevation, previously repointed with brick infills, minor brick spalls, and minor mortar joint deterioration</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
**127 E HIGH ST**

**JEFFERSON CITY, MO 65101**

**EXTERIOR STRUCTURAL SURVEY**

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

### GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Use</td>
<td>Sweet Smoke BBQ</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

### STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the building is 30 years old.
2. There is ponding present on the roof.
3. Masonry joints are sandy.
4. The building has been tuck pointed.

**Visual Observations**

The following are our observations:

1. Isolated mortar joint deterioration on south and east elevations (Photo 2, 6)
2. Cracked concrete and corroded steel on small projection on the north elevation (Photo 4)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Based on the owner survey information, the roofing is 30 years old and has ponding water. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repairs or replacement in the near future. Additionally, minor ponding water contributes to deterioration of the roofing system. Significant ponding water introduces loading on the roof framing members that may cause additional deflection and creep. If the roof framing members deflect enough, it could become a structural concern.

Recommendations
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Evaluation of cracked concrete and corroded steel on north elevation by a professional engineer
3. Evaluation of roofing system and the extent of ponding
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: South elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="South elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Isolated mortar joint deterioration</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Isolated mortar joint deterioration" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="North elevation" /></td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

<table>
<thead>
<tr>
<th>Photo</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Photo 4" /></td>
<td>Cracked concrete and corroded steel supporting small projection</td>
</tr>
<tr>
<td><img src="image2.png" alt="Photo 5" /></td>
<td>East elevation</td>
</tr>
<tr>
<td><img src="image3.png" alt="Photo 6" /></td>
<td>Isolated mortar joint deterioration on east elevation</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

Soffit: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
125 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Use</td>
<td>Downtown Book and Toy</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing on the building is 25 years old. The owner is planning on replacing the lower roof in 2020.
2. The side walls were repaired and waterproofed in 2019 under the supervision of a design professional.

Visual Observations

The following are our observations:
1. Deteriorated mortar joints on south elevation, west elevation, and chimney (Photo 2, 4-5)
2. Previously repaired stairstep crack on west elevation (Photo 5)
3. Staining below windows on west and north elevations (Photo 6, 8)
4. North-east column out of plumb (Photo 9)
5. Parapet on north-west corner leaning in (Photo 10)
**STRUCTURAL SURVEY SUMMARY – CONT.**

**Discussion**
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The staining below the windows could indicate window leaks. The interior of the structure around these windows and the windowsills should be evaluated.

The parapet on the northwest corner of the building appeared to be leaning slightly, however from the street level it was not apparent if the parapet was constructed that way or the parapet was experiencing structural distress.

Based on the owner survey information, the roofing is 25 years old. The owner is planning on replacing a portion of the roof in 2020. Depending on the type of roofing system, the portion of the roof that is not included in the planned replacement may be reaching the end of its useful service life and it may require repairs or replacement in the near future.

**Recommendations**
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Evaluate interior of structure near stained windows and windowsills for possible window leaks
3. Monitor out of plumb column and surrounding columns for movement. If movement is observed, contact and professional engineer
4. A close-up evaluation of the leaning parapet is recommended
5. An evaluation of the roofing system that is not being replaced is recommended
OBSERVATIONS

Photo 1: South elevation

Photo 2: Isolated mortar joint deterioration at curve, both sides of south wall

Photo 3: West elevation
## OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Deteriorated mortar on chimney</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Image of chimney with deteriorated mortar" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Previously repaired stairstep cracking in wall and deteriorated mortar joints on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Image of wall with previously repaired stairstep cracking" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 6: Staining under windows on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Image of windows with staining" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 7: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 8: Staining under windows on north elevation</td>
</tr>
<tr>
<td>Photo 9: North east column out of plumb</td>
</tr>
<tr>
<td>Photo 10: Parapet on north west corner leaning in</td>
</tr>
<tr>
<td>Photo 11: East elevation</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
Deterioration: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
123 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown | Historic Status | Non-contributing |
| No. of Levels | 1 | Historic Name/Use | Unknown |
| Basement (Y/N) | Yes, two levels | Current Use | Carrie’s Hallmark |
| Building Description | Single story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. South elevation is covered in stucco (Photo 1)
2. Mortar joint deterioration on north elevation (Photo 3)
3. Horizontal cracking of mortar above windows on north elevation (Photo 4)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed mortar cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

Recommendations
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Repointing of the crack to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> South elevation covered with stucco</td>
<td><img src="image1.jpg" alt="Photo 1: South elevation covered with stucco" /></td>
</tr>
<tr>
<td><strong>Photo 2:</strong> North elevation. Basement levels are covered with a cementitious material. Masonry between the windows and above the windows has potentially been previously cleaned and repointed.</td>
<td><img src="image2.jpg" alt="Photo 2: North elevation. Basement levels are covered with a cementitious material. Masonry between the windows and above the windows has potentially been previously cleaned and repointed." /></td>
</tr>
<tr>
<td><strong>Photo 3:</strong> Deteriorated mortar joints on north elevation</td>
<td><img src="image3.jpg" alt="Photo 3: Deteriorated mortar joints on north elevation" /></td>
</tr>
<tr>
<td>Photo 4: Horizontal cracking of mortar at top of windows on north elevation</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td><img src="image-url" alt="Photo 4: Horizontal cracking of mortar at top of windows on north elevation" /></td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
121 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
---|---
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Use</td>
<td>Carrie’s Hallmark</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

**Visual Observations**
The following are our observations:
1. The south elevation is covered with stucco (Photo 1)
2. Isolated peeling paint at mortar joints and a horizontal crack at the bottom of the north wall (Photo 3)

**Discussion**
The observed peeling of paint at mortar joints generally indicates improper application of the paint or movement of moisture through the wall. For the latter, the paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.

The horizontal crack does not appear to be part of a pattern that signifies significant structural distress. However, the crack can allow water intrusion and should be repointed.
Recommendations

Based on the observations we recommend the following:

1. Determine if peeling paint is due to improper application or movement of moisture through the wall.
   For the latter, determine the source of the moisture and remedial actions.
2. Repoint horizontal crack on north elevation to prevent water intrusion.
<table>
<thead>
<tr>
<th>Photo 1: South elevation covered with stucco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: North elevation, combination of brick and CMU blocks</td>
</tr>
<tr>
<td>Photo 3: Isolated peeling paint at mortar joints (rectangle) and horizontal crack (arrow) at bottom of north wall</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
117 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Carrie's Hallmark</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

**Visual Observations**

The following are our observations:

1. The masonry wall on the south elevation has been painted (Photo 1)
2. Impact damage to steel column on northwest corner of building (Photo 3)
3. Corroded steel baseplate on northwest column (Photo 3)
4. Horizontal crack at top and bottom of west wall (Photo 5-6)
5. Deteriorated mortar joints on west wall (Photo 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed impact damage to the steel column compromises the load carrying capacity of the column.

The horizontal crack does not appear to be part of a pattern that signifies significant structural distress. However, the crack can allow water intrusion and should be repointed.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:
1. Repair damaged steel column
2. Repoint horizontal cracks on west elevation to prevent water intrusion
3. Repoint deteriorated mortar joints
**OBSERVATIONS**

| Photo 1: South elevation, painted brick |
| Photo 2: North elevation |
| Photo 3: Impact damage to steel column on northwest corner of building and corroded base plate |
**OBSERVATIONS – CONT.**

<table>
<thead>
<tr>
<th>Photo</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Photo 4" /></td>
<td>West elevation</td>
</tr>
<tr>
<td><img src="image2" alt="Photo 5" /></td>
<td>Horizontal crack at top and at bottom of west wall and deteriorated mortar joints</td>
</tr>
<tr>
<td><img src="image3" alt="Photo 6" /></td>
<td>Previously repaired crack at top of west wall</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

- **CMU:** Concrete Masonry Unit
- **CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
- **CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
- **DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
- **DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
- **DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.
- **DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
- **DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
- **EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
- **FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
- **HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.
- **JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.
- **MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.
- **PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
- **REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
- **SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
- **SERVICE LIFE:** Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
- **SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
- **SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
- **SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Built</td>
<td>Unknown</td>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Gibbons Workman</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

**Visual Observations**

The following are our observations:

1. The south masonry wall has been painted (Photo 1)
2. Isolated mortar joint deterioration on south elevation (Photo 2)

**Discussion**

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

**Recommendations**

Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: South elevation, painted brick</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="South elevation, painted brick" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Isolated mortar joint deterioration on south elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Isolated mortar joint deterioration on south elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="North elevation" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
113 E HIGH ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020  
WPM Proposal No. | 19-2532  
WPM Project No. | D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Hill &amp; Stream</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. The south elevation has been painted (Photo 1)
2. Deteriorated mortar joints and peeling paint on south elevation (Photo 2)
3. Bricks appear to be bulging in line with the tie plates (Photo 2)
4. Isolated efflorescence on north elevation (Photo 4)
5. Isolated mortar joint deterioration on north elevation (Photo 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed peeling of paint generally indicates improper application of the paint or movement of moisture through the wall. For the latter, the paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.

The cause of the observed bulge in bricks on the south elevation could not be determined from the street level. Further investigation would be required to determine the cause and the extent of the bulge.

Efflorescence is caused by water flowing through masonry inducing the migration of water-soluble salts present in brick, mortar, backing or soil. These salts deposit on the exterior of the masonry creating white powdery surface coating.

Recommendations
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Determine if peeling paint is due to improper application or movement of moisture through the wall. For the latter, determine the source of the moisture and take remedial actions to stop the moisture.
3. An evaluation of the bulge in the south wall by a professional engineer
4. Determine source of moisture that is causing efflorescence and take remedial actions to stop the moisture
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: South elevation, painted brick</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1: South elevation, painted brick" /></td>
</tr>
</tbody>
</table>

| Photo 2: Peeling paint and deteriorated mortar joints on south elevation (rectangle) |
| Bricks appear to be bulging in line with the tie plates (arrow) |
| ![Photo 2: Peeling paint and deteriorated mortar joints on south elevation (rectangle)](image2.jpg) |

<table>
<thead>
<tr>
<th>Photo 3: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 3: North elevation" /></td>
</tr>
</tbody>
</table>
## OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Isolated efflorescence</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Image of isolated efflorescence" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Isolated deteriorated mortar joints</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Image of deteriorated mortar joints" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
111 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>3</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. The south masonry wall has been painted (Photo 1)
2. Peeling paint on south elevation (Photo 2)
3. Loose trim below third story window (Photo 3)
4. Minor stairstep crack on south elevation (Photo 4)
5. First story (above basement) of north elevation cover in stucco (Photo 5)
6. Deteriorated and missing mortar around basement opening on north elevation (Photo 6)
7. Deteriorated and cracked concrete foundation (Photo 7-8)
8. Downspout discharging next to foundation (Photo 7)
9. Deteriorated wood lintel at basement opening on north elevation (Photo 9)
10. Mortar joint deterioration on east elevation (Photo 11)
11. Mortar joint deterioration on lower half of chimney and chimney appears to be leaning (Photo 12)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed peeling of paint generally indicates improper application of the paint or movement of moisture through the wall. For the latter, the paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.

The loose trim can become an overhead fall hazard if it continues to detach from the building.

The observed mortar and brick cracking on the south elevation is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Various distress of concrete foundation walls was observed in the form of spalling, delamination, and cracking. The observed spalling was near the downspout, the prolonged exposure to moisture will continue to deteriorate the concrete. Further evaluation from the interior of the structure is recommended to determine the cause of the distress.

The deteriorated wood lintel at the basement opening should be replaced. The opening appears to be larger than it was originally constructed to be. It is unknown if the apparent expansion of the opening was designed by a professional engineer. The opening and the condition of the brick wall above the opening should be evaluated by a professional engineer.

Locating downspouts directly adjacent to the foundation or foundation wall leads to accelerated deterioration of the exposed concrete. The water could also accumulate adjacent to basement walls exerting large lateral pressure on the wall causing out-of-plane displacement. Lastly, water could cause erosion of soil under the foundation compromising its load carrying capacity.

Recommendations
Based on the observations we recommend the following:
1. Determine if the peeling paint is due to improper application or movement of moisture through the wall. For the latter, determine the source of the moisture and take remedial actions to stop the moisture.
2. Remove or securely reattach loose trim.
3. Repoint the crack on the south elevation to prevent water intrusion and monitor it periodically. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
4. Repoint deteriorated mortar joints.
5. Evaluation of distressed concrete foundation by a professional engineer.
6. Reroute downspouts away from the building’s foundation.
7. Evaluation of the opening at the basement level of the north elevation by a professional engineer.
8. Replace deteriorated wood lintel with galvanized steel lintel.
9. Evaluation of the chimney by a professional engineer to determine the extent and impacts of the lean.
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: South elevation, painted brick</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Peeling paint</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Loose trim below third story window</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
</tbody>
</table>
**Observations – Cont.**

<table>
<thead>
<tr>
<th>Photo 4: Minor stair step crack left of third story window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: North elevation, first story covered in stucco</td>
</tr>
<tr>
<td>Photo 6: Deteriorated and missing mortar around basement opening on north elevation</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 7: Deteriorated concrete foundation, downspout discharges next to foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 8: Cracked and deteriorated concrete foundation</td>
</tr>
<tr>
<td>Photo 9: Deteriorated wood lintel at opening on north elevation</td>
</tr>
</tbody>
</table>
## OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 10: East elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 11: Mortar joint deterioration on east elevation</td>
</tr>
<tr>
<td>Photo 12: Chimney out of plumb. Mortar joint deterioration on lower half of chimney</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
109 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Michael G. Winter Consultants</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

**Visual Observations**
The following are our observations:
1. Mortar joint deterioration on south and north elevations (Photo 2, 5)
2. Glazing spalls at terra cotta at top of parapet (Photo 1)
3. Isolated brick spall on south elevation (Photo 3)

**Discussion**
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated brick spall appears to be due to impact damage, however the exact cause could not be determined. An isolated brick spall is not a significant structural issue, however it allows moisture into the wall, which could cause accelerated deterioration of the masonry.
**Recommendaons**

Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Localized brick replacement of spalled bricks
3. Repair the terra cotta glazing spalls
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> South elevation, glazing spalls on terra cotta parapet</td>
</tr>
<tr>
<td><strong>Photo 2:</strong> Mortar joint deterioration that increases with height</td>
</tr>
<tr>
<td><strong>Photo 3:</strong> Isolated spalled brick</td>
</tr>
<tr>
<td>OBSERVATIONS – CONT.</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
**GLOSSARY OF TERMS**

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

---

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintigration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
107 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION
Year Built Unknown Historic Status Non-contributing
No. of Levels 3 Historic Name/Use Unknown
Basement (Y/N) Unknown Current Use The Grand Cafe
Building Description 3-story structure with masonry walls
Common Walls Unknown based on limited access
Overall Structure Condition Yellow

STRUCTURAL SURVEY SUMMARY
Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Parapet on south elevation appears to have been repointed (Photo 1)
2. Isolated shallow brick spall on south elevation (Photo 2)
3. Cracked and spalled sill stone on south elevation (Photo 3-4)
4. North masonry wall has been painted (Photo 5)
5. Stairstep crack on north elevation (Photo 6)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

The observed cracks and spalls in the sill stones are generally due to exposure to moisture and repeated freeze-thaw cycles. As they continue to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry

Recommendations
Based on the observations we recommend the following:
1. Localized brick replacement of spalled bricks
2. Remove or securely reattach any loose pieces of the sill stones. Periodic monitoring of the sill stones for further deterioration is recommended.
3. Repointing of the crack to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
<td>South elevation, parapet appears to have been repointed</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
<td>Isolated shallow brick spall</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
<td>Cracked sill stone on third story window</td>
</tr>
<tr>
<td><strong>OBSERVATIONS – CONT.</strong></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>Photo 4:</strong> Spalled sill stone at third story window</td>
<td></td>
</tr>
<tr>
<td><strong>Photo 5:</strong> North elevation, painted brick</td>
<td></td>
</tr>
<tr>
<td><strong>Photo 6:</strong> Stairstep crack on north elevation</td>
<td></td>
</tr>
</tbody>
</table>
## GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMU</td>
<td>Concrete Masonry Unit</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.</td>
</tr>
<tr>
<td>CORROSION</td>
<td>Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.</td>
</tr>
<tr>
<td>DEFLECTION</td>
<td>A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.</td>
</tr>
<tr>
<td>DELAMINATION</td>
<td>In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.</td>
</tr>
<tr>
<td>DETERIORATION</td>
<td>Disintegration or chemical decomposition of a material during service exposure.</td>
</tr>
<tr>
<td>DIAGONAL CRACK</td>
<td>An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.</td>
</tr>
<tr>
<td>DEFLECTION</td>
<td>A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.</td>
</tr>
<tr>
<td>DURABILITY</td>
<td>The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.</td>
</tr>
<tr>
<td>EFFLORESCENCE</td>
<td>A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.</td>
</tr>
<tr>
<td>FAÇADE</td>
<td>The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.</td>
</tr>
<tr>
<td>HAIRLINE CRACKING</td>
<td>Small cracks of random pattern in an exposed concrete surface.</td>
</tr>
<tr>
<td>JOINT SEALANT</td>
<td>Compressible material used to exclude water and solid foreign material from joints.</td>
</tr>
<tr>
<td>MAINTENANCE</td>
<td>Taking periodic actions that will either prevent or delay damage or deterioration or both.</td>
</tr>
<tr>
<td>PEELING</td>
<td>A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.</td>
</tr>
<tr>
<td>REINFORCEMENT</td>
<td>Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.</td>
</tr>
<tr>
<td>SCALING</td>
<td>Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.</td>
</tr>
<tr>
<td>SERVICE LIFE</td>
<td>Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.</td>
</tr>
<tr>
<td>SHRINKAGE CRACKING</td>
<td>Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.</td>
</tr>
<tr>
<td>SOFFIT</td>
<td>The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.</td>
</tr>
<tr>
<td>SPALL</td>
<td>A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.</td>
</tr>
</tbody>
</table>
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
105 E HIGH ST  
JEFFERSON CITY, MO 65101

EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020  
WPM Proposal No. | 19-2532  
WPM Project No. | D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>1860</th>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Fischer Drug Store</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Red</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations

The following are our observations:
1. Spalled sill stone at third story window on south elevation (Photo 2)
2. North masonry wall has been covered with a coating (Photo 3)
3. Stairstep crack in arch above second story window on south elevation (Photo 4)

Discussion

The observed spall in the sill stone is generally due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The wall construction above the second story window has not been confirmed, however it appears to be a true arch – brick spans structurally over the window without a steel lintel. It is unknown if the crack is superficial, only through the outer wythe, or if it extends through the thickness of the wall. If the crack extends through the thickness of the wall, it presents a potentially unstable structural condition and should be reviewed by a professional engineer.
Recommendations
Based on the observations we recommend the following:

1. Remove or securely reattach any loose pieces of the sill stone. Periodic monitoring of the sill stone is recommended to identify further deterioration.

2. An evaluation of the crack above the second story window by a professional engineer
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: South elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="South elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Spalled sill stone at third story window</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Spalled sill stone at third story window" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: North elevation, covered with coating</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="North elevation, covered with coating" /></td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: Stairstep crack above second story window
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
103 E HIGH ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>1</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Sawadee Thai Cuisine</td>
</tr>
<tr>
<td>Building Description</td>
<td>Single-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner.

Visual Observations
The following are our observations:
1. The south elevation has been covered with stucco (Photo 1)
2. Cracks and spalls in the architectural balustrade at top of south elevation (Photo 2-3)
3. Isolated mortar joint deterioration on north elevation (Photo 5)

Discussion
The observed cracks and spalls in the architectural features are generally due to exposure to moisture and repeated freeze-thaw cycles. As they continue to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.
STRUCTURAL SURVEY SUMMARY – CONT.

Recommendations
Based on the observations we recommend the following:
1. Close-up evaluation of the architectural balustrade at top of south elevation
2. Repoint deteriorated mortar joints
# OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: South elevation covered with stucco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Cracking in architectural pier, both sides</td>
</tr>
<tr>
<td>Photo 3: Spall in railing</td>
</tr>
</tbody>
</table>
## OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Photo 4: North elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Isolated mortar joint deterioration on north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Photo 5: Isolated mortar joint deterioration on north elevation" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
101 E HIGH ST / 227 JEFFERSON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020
WPM Proposal No.: 19-2532
WPM Project No.: D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Missouri Gaming Associates</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

**Visual Observations**
The following are our observations:
1. South, west, and north elevations are covered with stucco (Photo 1, 3, 5)
2. Stairstep cracks and mortar joint deterioration of east wall (Photo 2, 7)
3. Cracks and mortar joint deterioration in chimney (Photo 2, 7)
4. Cracks in stucco on west and north elevations (Photo 3, 6)
 STRUCTURAL SURVEY SUMMARY – CONT.

**Discussion**

The observed masonry cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the masonry expands and contracts due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated cracking in stucco appeared to be hairline in nature. Causes of isolated stucco cracking vary from shrinkage stresses, through movement stresses, to poor workmanship during application. Currently this condition does not present a structural issue, however, with continued exposure to moisture, it is likely that this distress condition will continue to worsen and allow an increased amount of moisture to come in contact with bricks and mortar behind.

**Recommendations**

Based on the observations we recommend the following:

1. Repointing of cracks to prevent water intrusion and periodic monitoring is recommended. If the cracks reopen after they have been repointed, they should be evaluated by a professional engineer.
2. Repoint deteriorated masonry joints
3. Seal isolated stucco cracks with appropriate sealant to prevent further moisture intrusion
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: South elevation covered in stucco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: South portion of east elevation, vertical cracks in wall</td>
</tr>
<tr>
<td>Mortar joint deterioration in chimney</td>
</tr>
<tr>
<td>Photo 3: West elevation covered with stucco</td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

<table>
<thead>
<tr>
<th>Photo 4: Cracks in stucco on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: North elevation covered in stucco</td>
</tr>
<tr>
<td>Photo 6: Horizontal cracking on stucco</td>
</tr>
</tbody>
</table>

Exterior Structural Survey
101 E High St / 227 Jefferson St

D08.20009.00 | July 15, 2020 | 4
### Observations – Cont.

<table>
<thead>
<tr>
<th>Photo 7: North portion of east elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortar deterioration on wall and chimney</td>
</tr>
<tr>
<td>Cracking of brick/stone on chimney</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
225 JEFFERSON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown | Historic Status | Non-contributing |
| No. of Levels | 2 | Historic Name/Use | Unknown |
| Basement (Y/N) | Unknown | Current Use | Unknown |
| Building Description | 2-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Mortar joint deterioration on west elevation (Photo 2)
2. Stairstep cracking on west and north elevations (Photo 3, 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
2. Repointing of the cracks to prevent water intrusion and periodic monitoring is recommended. If the cracks reopen after they have been repointed, they should be evaluated by a professional engineer.
| PHOTO 1: West elevation            | PHOTO 2: Mortar joint deterioration at corner of west elevation |
| PHOTO 3: Stairstep cracking below first story window on west elevation |
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: North elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Photo 4: North elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Stairstep crack at top of second story on north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Photo 5: Stairstep crack at top of second story on north elevation" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
216 MADISON ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date  07/15/2020  
WPM Proposal No.  19-2532  
WPM Project No.  D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>1</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes, two level</td>
<td>Current Use</td>
<td>Madison's Cafe</td>
</tr>
<tr>
<td>Building Description</td>
<td>Single-story structure with masonry walls.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the building is less than 10 years old.
2. Tuck pointing has been done on the building.
3. Structural shoring has been installed in the building under the supervision of a design professional.
4. Owner indicated that an inspection of the interior of the building is desired.

**Visual Observations**

The following are our observations:

1. Deteriorated concrete foundation at south-west corner of building (Photo 3)
2. Previous brick infills on south and west elevations (Photo 4)

**Discussion**

The masonry appears to be in generally good condition.

Distress of the concrete foundation was observed the form of spalling, delamination, and cracking. The observed distress was concentrated around the corner of the building where there is likely excess moisture due to runoff and splash-up from the adjacent street. Prolong exposure to moisture will cause the concrete to continue to deteriorate.
Recommendations
Based on the observations we recommend the following:

1. Continued periodic maintenance of the masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary
2. Further evaluation of the structure is recommended to determine the cause and a solution to the concrete deterioration
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th>Photo 1: East elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Photo 2: South elevation</td>
</tr>
<tr>
<td></td>
<td>Photo 3: Deteriorated concrete foundation at south west corner</td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

Photo 4: West elevation, previous brick infills
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
214 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date          07/15/2020
WPM Proposal No.     19-2532
WPM Project No.      D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Use</td>
<td>Madison’s Cafe</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing on the building is less than 10 years old.
2. Tuck pointing has been done on the building.

Visual Observations
The following are our observations:
1. Masonry on east elevation has been painted (Photo 1)
2. Isolated mortar joint deterioration on east elevation (Photo 2)
3. Corroded steel framing on west elevation (Photo 4-5)

Discussion
The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.
**Recommendations**

Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. An evaluation of the corroded steel framing by a professional engineer
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: East elevation, painted brick</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Isolated mortar joint deterioration above windows</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: West elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Corroded steel framing</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Photo 4 Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: Corroded steel, potentially a cover plate over framing</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Photo 5 Image" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
212 MADISON ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020
WPM Proposal No.: 19-2532
WPM Project No.: D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown | Historic Status | Non-contributing |
| No. of Levels | 2 | Historic Name/Use | Unknown |
| Basement (Y/N) | Yes | Current Use | River City Florist |
| Building Description | 2-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Yellow |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the building is 15 years old. The roofing is damaged and there have been roof leaks for the last year.
2. In the back of the building, there are cracks in the lower clay tile bricks.
3. Efflorescence is present on the inside wall.

**Visual Observations**
The following are our observations:

1. Corroded lintels above windows on east elevation (Photo 2)
2. Deteriorated mortar joints on west elevation (Photo 4)
3. Patched clay tile on west elevation (Photo 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
Surface corrosion was observed on lintels. To prevent further deterioration, the lintels should be cleaned and corrosion inhibiting coating should be applied to them.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The building owner survey indicated that the roofing is 15 years old and is has been leaking for the past year. The roofing is likely at the end of its useful service life.

Recommendations
Based on the observations we recommend the following:
1. Clean corroded lintels and apply corrosion inhibiting coating
2. Repoint deteriorated mortar joints
3. The roofing should be repaired or replaced to prevent continued water intrusion into the building
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: East elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="East elevation" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Corroded lintels above windows</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Corroded lintels" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: West elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="West elevation" /></td>
</tr>
</tbody>
</table>
Observations – Cont.

Photo 4: Deteriorated mortar joints on west elevation

Photo 5: Patched clay tile on west elevation
**GLOSSARY OF TERMS**

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMU:</td>
<td>Concrete Masonry Unit</td>
</tr>
<tr>
<td>CONCRETE:</td>
<td>Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.</td>
</tr>
<tr>
<td>CORROSION:</td>
<td>Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.</td>
</tr>
<tr>
<td>DEFLECTION:</td>
<td>A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.</td>
</tr>
<tr>
<td>DELAMINATION:</td>
<td>In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.</td>
</tr>
<tr>
<td>DETERIORATION:</td>
<td>Disintegration or chemical decomposition of a material during service exposure.</td>
</tr>
<tr>
<td>DIAGONAL CRACK:</td>
<td>An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.</td>
</tr>
<tr>
<td>DURABILITY:</td>
<td>The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.</td>
</tr>
<tr>
<td>EFFLORESCENCE:</td>
<td>A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.</td>
</tr>
<tr>
<td>FAÇADE:</td>
<td>The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.</td>
</tr>
<tr>
<td>HAIRLINE CRACKING:</td>
<td>Small cracks of random pattern in an exposed concrete surface.</td>
</tr>
<tr>
<td>JOINT SEALANT:</td>
<td>Compressible material used to exclude water and solid foreign material from joints.</td>
</tr>
<tr>
<td>MAINTENANCE:</td>
<td>Taking periodic actions that will either prevent or delay damage or deterioration or both.</td>
</tr>
<tr>
<td>PEELING:</td>
<td>A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.</td>
</tr>
<tr>
<td>REINFORCEMENT:</td>
<td>Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.</td>
</tr>
<tr>
<td>SCALING:</td>
<td>Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.</td>
</tr>
<tr>
<td>SERVICE LIFE:</td>
<td>Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.</td>
</tr>
<tr>
<td>SHRINKAGE CRACKING:</td>
<td>Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.</td>
</tr>
<tr>
<td>SOFFIT:</td>
<td>The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.</td>
</tr>
<tr>
<td>SPALL:</td>
<td>A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.</td>
</tr>
</tbody>
</table>
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
208 MADISON ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown          | Historic Status        | Non-contributing |
| No. of Levels | 3              | Historic Name/Use | Unknown          |
| Basement (Y/N) | Yes            | Current Use | Vacant          |
| Building Description | 3-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Yellow |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing on the building is two years old.
2. Tuck pointing was done on the front of the building in April 2020.
3. The building was totally rebuilt in 2018-2019 under the supervision of a design professional.

Visual Observations
The following are our observations:
1. The first story of the east elevation is covered with stucco (Photo 1)
2. Gap below second story window, work on the window appears to be in progress (Photo 2)
3. Cracked sill stone below third story window (Photo 3)
4. The west elevation is covered with siding (Photo 4)

Discussion
The observed crack in the sill stone is generally due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

Recommendations
Based on the observations we recommend the following:
1. Remove or securely reattach any loose pieces of the cracked sill stone. Periodic monitoring of the sill stone for further deterioration is recommended.
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: East elevation, first story covered with stucco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Gap below second story window</td>
</tr>
<tr>
<td>Photo 3: Cracked sill stone below third story window</td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: West elevation, covered with siding
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
109-111-113 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

| Year Built | c. 1850 |
| No. of Levels | 3 |
| Basement (Y/N) | Yes |
| Building Description | 3-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Yellow |

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

OWNER SURVEY INFORMATION

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the building is approximately five years old.
2. Tuck pointing was done on the building in 2019.
3. Structural modifications were done to the building around 1988 under the supervision of a design professional.

VISUAL OBSERVATIONS

The following are our observations:

1. Deteriorated wood eave framing on west elevation (Photo 2)
2. Mortar joint deterioration on west and north elevations (Photo 3, 7)
3. Isolated brick spalls on north elevation (Photo 7)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion

The observed deteriorated eave is typically due to age and exposure to moisture. As the eave continues to deteriorate, pieces can fall off and create an overhead hazard.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent — typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

Recommendations

Based on the observations we recommend the following:

1. Evaluate eave for loose pieces and remove or securely reattach any loose pieces
2. Repoint deteriorated mortar joints
3. Localized brick replacement of spalled bricks
## OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: West elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Deteriorated eave wood framing</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Isolated locations of shallow mortar joint deterioration</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Image" /></td>
</tr>
<tr>
<td>OBSERVATIONS – CONT.</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Photo 4: East elevation overall view</td>
</tr>
<tr>
<td>Photo 5: Auxiliary structure on east side</td>
</tr>
<tr>
<td>Photo 6: North elevation overall view</td>
</tr>
</tbody>
</table>
Photo 7: Mortar loss and isolated brick spalls at top of north wall
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
115-117 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION
Year Built c. 1850
Historic Status Contributing
No. of Levels 2
Historic Name/Use Unknown
Basement (Y/N) Yes
Current Use Unknown
Building Description 2-story structure with masonry walls
Common Walls Unknown based on limited access
Overall Structure Condition Yellow

STRUCTURAL SURVEY SUMMARY
Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Spalled and delaminated cornice on west elevation (Photo 2)
2. Shallow brick spalls on south elevation and southeast corner (Photo 4, 10)
3. Opening in south foundation wall (Photo 5)
4. Deteriorated mortar joints on west elevation (Photo 7)
5. Vertical crack near southwest corner (Photo 8)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed distress in the cornice is typically due to exposure to moisture and repeated freeze-thaw cycles. As it continues to crack and deteriorate, pieces can spall off, creating an overhead hazard.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

An opening was observed in the stone foundation. It appeared that there was a concrete behind the stone foundation. It is unknown if the observed condition was intentional or reviewed by a professional engineer.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

Recommendations
Based on the observations we recommend the following:
1. Remove or securely reattach any loose pieces of the cornice
2. Localized brick replacement of spalled bricks
3. An evaluation of the opening in the stone foundation by a professional engineer
4. Repoint deteriorated mortar joints
5. Repointing of the crack to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: West elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Spalled and delaminated stone cornices at central and south end of west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: West portion of south wall overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
<tr>
<td>Photo</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 7: Deteriorated mortar joints next to door on west wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 8: Vertical crack near southwest corner</td>
</tr>
<tr>
<td>Photo 9: East portion of south wall overall view</td>
</tr>
<tr>
<td>Photo 10: Brick spalls at southeast corner</td>
</tr>
<tr>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Photo 11: East elevation overall view</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
205 E CAPITOL AVE  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>Missouri Petroleum Marketers</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

**Visual Observations**
The following are our observations:
1. Previous repointing on south elevation (Photo 2)
2. Horizontal cracks with a gap between windows on south elevation (Photo 3)
3. Missing mortar between cap stones on west and south elevations (Photo 4)
4. Corroded lintel on south elevation (Photo 6)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed horizontal cracks are likely due to rust jacking of the lintels or movement of a relief angle. However, the exact cause could not be determined from the street level. Further investigation would be required to determine the exact cause and a solution.

Cap stones serve to protect the top of the wall from moisture infiltration. The observed deterioration of the mortar joints could allow moisture to infiltrate between the wythes of brick and cause accelerated deterioration of brick and mortar assembly. Moisture infiltration into the interior of the building is also possible. In order to protect the wall assembly and interior finishes, the mortar joints should be repaired.

Surface corrosion was observed on a lintel. To prevent further deterioration, the lintel should be cleaned and coated with a corrosion inhibiting coating.

Recommendations
Based on the observations we recommend the following:

1. Evaluation of the horizontal cracks by a professional engineer
2. Repair mortar joints at cap stones
3. Clean and coat corroded lintel with a corrosion inhibiting coating
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: South elevation overall view</td>
<td></td>
</tr>
<tr>
<td>Photo 2: Previous repointing above and around lower-level windows on west wall</td>
<td></td>
</tr>
<tr>
<td>Photo 3: Horizontal cracks with a gap between lintels of second-story windows</td>
<td></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

| Photo 4: Missing mortar between cap stones on west and south elevations |
|---|---|
| Photo 5: South elevation overall view |
| Photo 6: Corroded lintel above east window on south wall |
OBSERVATIONS – CONT.

Photo 7: North elevation overall view
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
207 E CAPITOL AVE  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020  
WPM Proposal No. | 19-2532  
WPM Project No. | D08.20009.00

GENERAL INFORMATION

| Year Built | Unknown | Historic Status | Non-contributing |
| No. of Levels | 2 | Historic Name/Use | Unknown |
| Basement (Y/N) | Yes | Current Use | MBA |
| Building Description | 2-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

Visual Observations

The following are our observations:

1. Deteriorated cove sealant (Photo 2)
2. Previous repointing and brick infill on north elevation (Photo 3)

Discussion

The masonry appears to be in generally good condition.

Recommendations

Based on the observations we recommend the following:

1. Remove and replace cove sealant
2. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: South elevation overall</td>
<td><img src="image1.jpg" alt="Photo 1: South elevation overall view" /></td>
</tr>
<tr>
<td>view</td>
<td></td>
</tr>
<tr>
<td>Photo 2: Deteriorated cove sealant</td>
<td><img src="image2.jpg" alt="Photo 2: Deteriorated cove sealant" /></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo 3: North elevation, previous</td>
<td><img src="image3.jpg" alt="Photo 3: North elevation, previous repointing and brick infills" /></td>
</tr>
<tr>
<td>repointing and brick infills</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
Soffit: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
211-213 E CAPITOL AVE  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION**

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Missouri Pharmaceutical Association</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**STRUCTURAL SURVEY SUMMARY**

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the building is 25 years old.
2. There are cracks in the concrete footer to the right of the entry way.
3. The side and the back of the building have settled. The foundation was repaired last year and tuck pointing was done on the exterior. The sewer pipe was replaced and new mortar was applied to the inside walls in the basement. The work was done under the supervision of a design professional.
4. There is a racked door into a closet on the third floor.

**Visual Observations**
The following are our observations:

1. Stairstep cracking (Photo 2)
2. The east and north elevations are covered with EIFS (Photo 3)
3. Cracks in EIFS around third story windows (Photo 3)
4. Previously repointed foundation wall (Photo 4)
5. Downspout discharging against foundation on north elevation (Photo 6)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

Locating downspouts directly adjacent to the foundation or foundation wall leads to accelerated deterioration of the exposed mortar joints. The water could also accumulate adjacent to basement walls exerting large lateral pressure on the wall causing out-of-plane displacement. Lastly, water could cause erosion of soil under the foundation compromising its load carrying capacity.

Based on the owner survey information, the roofing is 25 years old. Depending on the type of roofing system, it may be reaching the end of its useful service life and it may require repairs or replacement in the near future.

Recommendations
Based on the observations we recommend the following:
1. Repointing of the crack to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
2. Seal cracks in EIFS to prevent water intrusion
3. Reroute downspouts away from the building’s foundation
4. Evaluate the roofing system to determine if it is need of repair or replacement
<table>
<thead>
<tr>
<th>Photo 1: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Stairstep crack under window near southwest corner</td>
</tr>
<tr>
<td>Photo 3: East and north elevations covered with EIFS façade, cracks in EIFS around third story windows</td>
</tr>
<tr>
<td><strong>OBSERVATIONS – CONT.</strong></td>
</tr>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td><img src="image" alt="Photo 4" /></td>
</tr>
<tr>
<td><img src="image" alt="Photo 5" /></td>
</tr>
<tr>
<td><img src="image" alt="Photo 6" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
215 E CAPITOL AVE
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020
WPM Proposal No.: 19-2532
WPM Project No.: D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Use</td>
<td>Steven R Carroll &amp; Associates</td>
</tr>
</tbody>
</table>

Building Description: 2-story structure with masonry walls
Common Walls: Unknown based on limited access
Overall Structure Condition: Yellow

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing on the building is 12 years old.

Visual Observations
The following are our observations:
1. Cracked sealant at east edge of south wall (Photo 2)
2. Minor cracking and patching in concrete at base of south wall (Photo 3)
3. Deteriorated mortar in stone foundation (Photo 5)

Discussion
Distress, such as minor cracking and patching, was observed in the concrete at the base of the south wall. Further evaluation would be required to determine the cause of the distress.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.
Recommendations
Based on the observations we recommend the following:
1. Remove and replace cracked sealant
2. A close-up evaluation of the distress concrete is recommended
3. Repoint deteriorated mortar joints
<table>
<thead>
<tr>
<th>Photo 1</th>
<th>Photo 2</th>
<th>Photo 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>South elevation overall view</td>
<td>Cracked/separated sealant between buildings</td>
<td>Minor cracking and patching in concrete at base of wall</td>
</tr>
</tbody>
</table>
## OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: North elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: Deteriorated mortar in stone foundation</td>
</tr>
</tbody>
</table>

---
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
217 E CAPITOL AVE  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020  
WPM Proposal No. 19-2532  
WPM Project No. D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>3</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Vacant</td>
</tr>
<tr>
<td>Building Description</td>
<td>3-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Vertical crack at top of south wall (Photo 2)
2. Isolated brick spalls on west elevation (Photo 5)

Discussion
The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.
Recommendations
Based on the observations we recommend the following:

1. Repointing of the crack and replacement of cracked bricks to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.

2. Localized brick replacement of spalled bricks
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> South elevation overall view</td>
<td><img src="image1.png" alt="Photo 1" /></td>
</tr>
<tr>
<td><strong>Photo 2:</strong> Vertical crack at top of south wall</td>
<td><img src="image2.png" alt="Photo 2" /></td>
</tr>
<tr>
<td><strong>Photo 3:</strong> East elevation overall view</td>
<td><img src="image3.png" alt="Photo 3" /></td>
</tr>
<tr>
<td>Photo 4: North elevation overall view</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Photo 5: West elevation overall view, isolated brick spalls</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERiorATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
221 E CAPITOL AVE
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | 1870 | Historic Status | Contributing |
| No. of Levels | 2 | Historic Name/Use | Unknown |
| Basement (Y/N) | Yes | Current Use | Lewis, Rice & Fingersh, L.C. |
| Building Description | 2-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Yellow |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. No indications of distress are observable inside the building.

Visual Observations
The following are our observations:
1. Debonded mortar joint between neighboring structures (Photo 2)
2. Significant mortar loss at south elevation (Photo 3)
3. Stairstep crack initiating at bottom of window on south elevation (Photo 4)
**STRUCTURAL SURVEY SUMMARY – CONT.**

**Discussion**

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

**Recommendations**

Based on the observations we recommend the following:

1. Repoint deteriorated mortar joint between neighboring structures
2. Evaluation of the significant mortar loss on south elevation by a professional engineer
3. Repointing of the crack and replacement of cracked bricks to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
### OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Debonded mortar joint between structures</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="image2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Significant mortar loss at south elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="" /></td>
</tr>
<tr>
<td>Photo 4: Crack initiating at bottom of window</td>
</tr>
<tr>
<td>Photo 5: North elevation overall view</td>
</tr>
</tbody>
</table>

---

**OBSERVATIONS – CONT.**
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
223 E CAPITOL AVE  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020  
WPM Proposal No. | 19-2532  
WPM Project No. | D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Unknown</th>
<th>Historic Status</th>
<th>Non-contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Historic Name/Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Vacant</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

Visual Observations

The following are our observations:

1. Open head joints between cap stones (Photo 2)
2. Stairstep crack above storefront (Photo 3)
3. There appears to be an addition on the building (Photo 4)
4. Mortar joint deterioration on south and east elevations (Photo 5, 7)
5. North wall appears to have been repointed around gutter (Photo 8)
6. Top story of north elevation is cover with EIFS (Photo 8)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
Cap stones or coping serve to protect the top of the wall from moisture infiltration. The observed deterioration of the mortar head joints between cap stones could allow moisture to infiltrate between the wythes of brick and cause accelerated deterioration of brick and mortar assembly. Moisture infiltration into the interior of the building is also possible. In order to protect the wall assembly and interior finishes, the mortar joints should be repointed.

The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

The observed mortar deterioration is generally due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Repointing of the crack to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th>Photo 1: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Photo 2: Vertical gaps between capstones</td>
</tr>
<tr>
<td></td>
<td>Photo 3: Stairstep cracks at both corners above the storefront</td>
</tr>
<tr>
<td>Photo 4: South elevation overall view, apparent addition to building</td>
<td></td>
</tr>
<tr>
<td>Photo 5: Isolated mortar loss in the field of wall and in windowsills</td>
<td></td>
</tr>
<tr>
<td>Photo 6: East elevation overall view</td>
<td></td>
</tr>
</tbody>
</table>
**OBSERVATIONS – CONT.**

<table>
<thead>
<tr>
<th>Photo 7: Isolated severely deteriorated mortar joints on east wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 8: North elevation overall view, wall appears to have been repointed around gutter and third story is covered in EIFS</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
225-227 E CAPITOL AVE
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020
WPM Proposal No.: 19-2532
WPM Project No.: D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1870</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of Levels</th>
<th>Historic Name/Use</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Capital Radar Security</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basement (Y/N)</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>The Poultry Federation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building Description</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-story structure with masonry walls</td>
<td>It’s a Great Day LLC, Massage Therapy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall Structure Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. The roofing on the building is 7 years old.
2. Minor sealing of gaps between bricks has been performed on the building.

Visual Observations
The following are our observations:
1. Previous repair on south wall (Photo 3)
2. Mortar joint deterioration and brick spalls on east wall (Photo 4)
3. North elevation is covered in siding (Photo 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
2. Localized brick replacement of spalled bricks
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: East elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Previous repair on east wall</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Mortar joint deterioration and brick spalls at northeast corner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: North elevation overall view, covered in siding</td>
</tr>
</tbody>
</table>

---

Exterior Structural Survey  
225-227 E Capitol Ave  

D08.20009.00 | July 15, 2020  

4
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
114-118 E DUNKLIN ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020  
WPM Proposal No. 19-2532  
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | 1893 | Historic Status | Contributing |
| No. of Levels | 1 | Historic Name/Use | Unknown |
| Basement (Y/N) | Unknown | Current Use | Southside Barber Shop |
| Building Description | Single story structure with masonry walls  
The original building was expanded to its current form in 1951 |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Green |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:

1. Previously repaired crack on north and west elevations (Photo 2-3)  
2. West elevation is constructed of brick on the north portion and single wythe CMU on the south portion (Photo 3-4)  
3. Deteriorated mortar joints on west elevation (Photo 4)  
4. Stairstep crack on east elevation (Photo 6)
 STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:

1. Repointing of the crack to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
2. Repoint deteriorated mortar joints
OBSERVATIONS

<table>
<thead>
<tr>
<th>Photo 1: North elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Previously repaired crack on north elevation</td>
</tr>
<tr>
<td>Photo 3: West elevation, north portion is brick masonry, south portion is CMU wall</td>
</tr>
<tr>
<td>Stairstep crack below window</td>
</tr>
</tbody>
</table>
## OBSERVATIONS – CONT.

| Photo 4: Transition from brick to CMU wall on west elevation, deteriorated mortar joints around windows |
| Photo 5: East elevation |
| Photo 6: Stairstep crack on east elevation |
| Photo 7: South portion of west elevation and south elevation |
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
120-122 E DUNKLIN ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

Report Date: 07/15/2020  
WPM Proposal No.: 19-2532  
WPM Project No.: D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Historic Status</th>
<th>Historic Name/Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1892</td>
<td>Contributing</td>
<td>Nieghorn House Hotel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of Levels</th>
<th>Current Use</th>
<th>Building Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Unknown</td>
<td>3-story structure with masonry walls</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basement (Y/N)</th>
<th>Common Walls</th>
<th>Overall Structure Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>Unknown</td>
<td>Green</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Mortar joint deterioration on west and north elevations (Photo 2, 5-6)
2. Previous localized mortar repairs on north elevation (Photo 3)
3. Vertical cracks around window on north elevation (Photo 4)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed mortar and brick cracking is typically due to movement of support system for the masonry wall or to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
2. Repointing of the crack to prevent water intrusion and periodic monitoring is recommended. If the crack reopens after it has been repointed, it should be evaluated by a professional engineer.
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: North elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Photo 1" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Mortar joint deterioration at base of north elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Photo 2" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Previous localized mortar repairs</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Photo 3" /></td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: Vertical cracks around central window

Photo 5: West elevation overall view, minor mortar joint deterioration

Photo 6: Mortar joint deterioration near top of west elevation
### Observations – Cont.

<table>
<thead>
<tr>
<th>Photo 7: South elevation overall view</th>
</tr>
</thead>
</table>

![South elevation overall view](image-url)
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
# Exterior Structural Survey

124 E DUNKLIN ST  
JEFFERSON CITY, MO 65101  
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

## GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>1908</th>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Historic Name/Use</td>
<td>Schmidt Shoe Store</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
<td>Current Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access, west wall is not shared</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

### Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the building is 2 years old.
2. There are a few cracks and spalling bricks in the walls.
3. Efflorescence is present around the bottom of the building.
4. The masonry joints are sandy and have voids.
5. Tuck pointing was done around the roof a few years ago.
6. The basement is very wet after a rain and damp all the time.
7. There is ponding water on the roof after a rain.
8. The owner believes there may have been structural repairs/modification before the building was purchased. 2x4 were added in a few areas in the basement.

### Visual Observations

The following are our observations:

1. Previous repointing on north elevation (Photo 2)
2. Mortar joint deterioration on west elevation (Photo 3)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent—typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Based on the owner survey information, the basement is very wet after a rain and damp all the time. Moisture entering the building through the foundation or the walls can contribute to accelerated deterioration of the masonry walls.

Based on the owner survey information, water ponds on the roof after a rain. Minor ponding water contributes to deterioration of the roofing system. Significant ponding water introduces loading on the roof framing members that may cause additional deflection and creep. If the roof framing members deflect enough, it could become a structural concern.

Recommendations
Based on the observations we recommend the following:
1. Repoint deteriorated mortar joints
2. Investigate the basement leaks to identify the source of moisture and take remedial action to stop the moisture intrusion
3. Review structural framing for damage due to long term moisture exposure
4. Evaluate the roofing system and the extent of ponding
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: North elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="North elevation overall view" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 2: Previous repointing near west window on north wall and diagonal crack at lower corner of window</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Previous repointing near west window" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 3: Mortar joint deterioration on west elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Mortar joint deterioration" /></td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: South elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="South elevation overall view" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo 5: West elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="West elevation overall view" /></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
126 E DUNKLIN ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date | 07/15/2020
---------- | -----------
WPM Proposal No. | 19-2532
WPM Project No. | D08.20009.00

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>1918</th>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Historic Name/Use</td>
<td>Southside Dry Goods</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. North elevation parapet appears to be previously repointed
2. No visual signs of deterioration were observed

Discussion
The masonry appeared to be in generally good condition.

Recommendations
Based on the observations we recommend the following:
1. Continued periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: North elevation overall view</th>
</tr>
</thead>
</table>

Exterior Structural Survey  
126 E Dunklin St

D08.20009.00 | July 15, 2020
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
# Exterior Structural Survey

## 128 E DUNKLIN ST

JEFFERSON CITY, MO 65101

EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>Report Date</th>
<th>07/15/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPM Proposal No.</td>
<td>19-2532</td>
</tr>
<tr>
<td>WPM Project No.</td>
<td>D08.20009.00</td>
</tr>
</tbody>
</table>

## GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>1924</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Yes</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Unknown based on limited access</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Name/Use</td>
<td>Milo H. Walz Hardware Store</td>
</tr>
<tr>
<td>Current Use</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

## STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

### Owner Survey Information

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. The roofing on the building is 5 years old.

### Visual Observations

The following are our observations:

1. Concrete spalling at base of north wall (Photo 2)
2. Slight bowing of east wall (Photo 3)
3. Peeling paint, mortar loss, and isolated brick spalls on east wall (Photo 3)
4. Mortar joint deterioration on chimney (Photo 4)
Discussion
The observed distressed concrete at the base of the north wall is likely due to exposure to moisture and splash-up from the sidewalk.

The east elevation wall was observed to be bowing out at the top of the exterior wythe. It appears that the top rows of the wythe could potentially be loose and be an overhead fall hazard.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed peeling of paint at mortar joints generally indicates improper application of the paint or movement of moisture through the wall. For the latter, the paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.

The observed isolated shallow brick spalls are typically due to previous repointing of the wall with mortar that is harder than the original mortar, however the exact cause could not be determined without further investigation. Isolated shallow brick spalls are not a significant structural issue, however the exposed interior of the brick will continue to deteriorate at an accelerated rate, which could lead to further deterioration of the wall.

Recommendations
Based on the observations we recommend the following:

1. Patch concrete spalls
2. Close-up evaluation of the bowing wall
3. Repoint deteriorated mortar joints
4. Determine if peeling paint is due to improper application or movement of moisture through the wall. For the latter, determine the source of the moisture and take remedial actions to stop the moisture.
5. Localized brick replacement of spalled bricks
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1: North elevation overall view</td>
<td><img src="image1.png" alt="Photo 1: North elevation overall view" /></td>
</tr>
<tr>
<td>Photo 2: Concrete spalling at base of north wall</td>
<td><img src="image2.png" alt="Photo 2: Concrete spalling at base of north wall" /></td>
</tr>
<tr>
<td>Photo 3: East elevation overall view, wall bowing, peeling paint, mortar loss, isolated brick spalls</td>
<td><img src="image3.png" alt="Photo 3: East elevation overall view, wall bowing, peeling paint, mortar loss, isolated brick spalls" /></td>
</tr>
<tr>
<td>Photo 4: Mortar joint deterioration on chimney</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GREEN CONDITION** – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

**YELLOW CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

**RED CONDITION** – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

**CMU:** Concrete Masonry Unit

**CONCRETE:** Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**FAÇADE:** The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

**SERVICE LIFE:** Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SOFIT:** The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
704 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>1936</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Non-contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Milo H. Waltz Furniture Store</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>Unknown</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>Structure was freestanding without common walls</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

**Visual Observations**

The following are our observations:

1. Peeling paint at mortar joints on north elevation (Photo 2, 9)
2. Mortar joint deterioration on south elevation (Photo 4)
3. Failed sealant at control joint on west elevation (Photo 6)
4. Isolated cracking of CMU wall on west elevation (Photo 7)
5. Parapet wall on northwest corner appears to be leaning (Photo 8)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The observed peeling of paint at mortar joints generally indicates improper application of the paint or movement of moisture through the wall. For the latter, the paint stops the moisture from escaping, which results in blistering and peeling of the paint. Moisture in the wall can result in accelerated deterioration of the mortar and the brick.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed mortar and CMU cracking is typically due to movement of support system for the masonry wall or due to thermal and moisture movement. Movement of the structural frame can result in pinch points in rigid materials resulting in cracking of the masonry or mortar. Lack of control joints in the wall can lead to cracks when the bricks expand and contract due to changes in temperature and/or moisture. If the condition is not addressed, it may lead to increased water infiltration and possible masonry shifting. Proper selection of a repointing mortar is critical to repairing historic masonry.

Leaning parapet could present an overhead fall hazard. The cause of the leaning parapet could not be determined from the street level and will require close up evaluation.

Recommendations
Based on the observations we recommend the following:

1. Determine if peeling paint is due to improper application or movement of moisture through the wall. For the latter, determine the source of the moisture and take remedial actions to stop the moisture.
2. Repoint deteriorated mortar joints
3. Remove and replace failed sealant at control joints
4. Repointing of the cracks to prevent water intrusion and periodic monitoring is recommended. If the cracks reopen after they has been repointed, they should be evaluated by a professional engineer.
5. Evaluate parapet wall to determine extent of lean
<table>
<thead>
<tr>
<th>Photo 1: East elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: Peeling paint at mortar joints on north elevation</td>
</tr>
<tr>
<td>Photo 3: South elevation overall view</td>
</tr>
</tbody>
</table>
### OBSERVATIONS – CONT.

<table>
<thead>
<tr>
<th>Photo 4: Isolated mortar joint deterioration on south elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 5: West elevation and CMU wall on south elevation</td>
</tr>
<tr>
<td>Photo 6: Failed sealant at control joint on west elevation</td>
</tr>
<tr>
<td>OBSERVATIONS – CONT.</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Photo 8: Leaning parapet wall at northwest corner</td>
</tr>
<tr>
<td>Photo 9: North elevation overall view</td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
Deterioration: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.
HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
130 E DUNKLIN ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

Report Date 07/15/2020
WPM Proposal No. 19-2532
WPM Project No. D08.20009.00

GENERAL INFORMATION

| Year Built | 1908 |
| Year Built | 1908 |
| No. of Levels | 2 |
| Basement (Y/N) | Unknown |
| Building Description | 2-story structure with masonry walls |
| Common Walls | Unknown based on limited access |
| Overall Structure Condition | Yellow |

| Historic Status | Contributing |
| Historic Status | Contributing |
| Historic Name/Use | Henry Schmidt Grocery Store |
| Historic Name/Use | Henry Schmidt Grocery Store |
| Current Use | Unknown |
| Current Use | Unknown |

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Mortar joint deterioration on the east elevation (Photo 3, 4)
2. Minor wood cornice deterioration (Photo 6)

Discussion
The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

The observed deterioration in the wood cornice is generally due to exposure to moisture. As it continues to deteriorate, pieces may begin to fall off, creating an overhead hazard.
Recommendations
Based on the observations we recommend the following:

1. Repoint deteriorated mortar joints
2. Evaluate the wood cornice to determine if there are any loose pieces and remove them or securely reattach them to the building
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photo 1:</strong> North elevation overall view</td>
<td><img src="image1" alt="North elevation overall view" /></td>
</tr>
<tr>
<td><strong>Photo 2:</strong> East elevation overall view</td>
<td><img src="image2" alt="East elevation overall view" /></td>
</tr>
<tr>
<td><strong>Photo 3:</strong> Slight mortar deterioration at base of east elevation</td>
<td><img src="image3" alt="Slight mortar deterioration at base of east elevation" /></td>
</tr>
<tr>
<td>Photo 4: Isolated vertical mortar joint gaps on east wall</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Photo 5: South elevation overall view</td>
<td></td>
</tr>
<tr>
<td>Photo 6: Minor wood cornice deterioration</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Year Built</th>
<th>1935</th>
<th>Historic Status</th>
<th>Contributing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Levels</td>
<td>2</td>
<td>Historic Name/Use</td>
<td>Central Dairy</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
<td>Current Use</td>
<td>Central Dairy</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
<td>According to the NR Nomination, the building was constructed in two stages. The north end was constructed ca. 1935, and an expansion ca. 1942.</td>
<td></td>
</tr>
<tr>
<td>Common Walls</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURAL SURVEY SUMMARY

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

Owner Survey Information
The following information relevant to the scope of this survey was provided by the building owner and/or tenant:
1. A survey response was not received from the building owner or tenant.

Visual Observations
The following are our observations:
1. Minor cracking of glazed bricks on east wall (Photo 3)

Discussion
It is unknown if the observed cracking is due to thermal movement, bearing from the lintel, or another unknown reason. If the cracked bricks become loose, they may present an overhead fall hazard.

Recommendations
Based on the observations we recommend the following:
1. Replace cracked glazed bricks
2. Continue periodic maintenance of masonry walls, including repointing mortar joints, replacing damaged bricks, and coating with sealers as necessary
**OBSERVATIONS**

<table>
<thead>
<tr>
<th>Photo 1: East elevation overall view</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2: South elevation overall view</td>
</tr>
<tr>
<td>Photo 3: Minor cracking of façade tiles near north window on east wall</td>
</tr>
</tbody>
</table>
OBSERVATIONS – CONT.

Photo 4: North elevation overall view
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit
CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.
CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.
DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.
DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.
DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.
DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.
DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.
EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.
FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.
JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.
MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.
PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.
REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.
SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.
SERVICE LIFE: Estimated time until the on-set of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.
SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.
SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.
SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.
620 MADISON ST
JEFFERSON CITY, MO 65101
EXTERIOR STRUCTURAL SURVEY

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>D08.20009.00</th>
<th>July 15, 2020 1</th>
</tr>
</thead>
</table>

**GENERAL INFORMATION**

<table>
<thead>
<tr>
<th>Year Built</th>
<th>1935</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Status</td>
<td>Contributing</td>
</tr>
<tr>
<td>No. of Levels</td>
<td>2</td>
</tr>
<tr>
<td>Historic Name/Use</td>
<td>Busch’s Florist</td>
</tr>
<tr>
<td>Basement (Y/N)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Current Use</td>
<td>Busch’s Florist</td>
</tr>
<tr>
<td>Building Description</td>
<td>2-story structure with masonry walls</td>
</tr>
<tr>
<td>Common Walls</td>
<td>No</td>
</tr>
<tr>
<td>Overall Structure Condition</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

**STRUCTURAL SURVEY SUMMARY**

Walter P. Moore and Associates, Inc. has completed an exterior structural survey of the referenced structure. Our assessment consisted of a cursory visual review of the exterior of the structure and review of information provided by property owners to determine the condition of the exterior unreinforced masonry walls.

**Owner Survey Information**

The following information relevant to the scope of this survey was provided by the building owner and/or tenant:

1. A survey response was not received from the building owner or tenant.

**Visual Observations**

The following are our observations:

1. Parapet wall on north elevation appears to be leaning slightly (Photo 3)
2. Minor mortar loss near top of south wall (Photo 5)
STRUCTURAL SURVEY SUMMARY – CONT.

Discussion
The north parapet appeared to be leaning slightly, however, from the street level it was not apparent if the parapet was constructed that way or the parapet was experiencing structural distress. There were other locations on the structure, such as the south elevation, where leaning and/or slight bowing of masonry wall could be present.

The observed mortar deterioration is typically due to the age of the mortar joints and their exposure to wind, rain, and repeated freeze-thaw cycles. Prolonged exposure to water such as at leaking windows, at leaking roofing systems, at base of walls, or at down spouts accelerates the process of mortar deterioration by dissolving the bonding agent – typically lime. Repairing deteriorated mortar joints reduces the amount of water that penetrates the wall. Adequately repaired mortar joints restore the integrity and load carrying capacity of the masonry walls.

Recommendations
Based on the observations we recommend the following:
1. Close-up evaluation of the leaning parapet and possible wall bowing
2. Repoint deteriorated mortar joints
<table>
<thead>
<tr>
<th>OBSERVATIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Photo 1: East elevation overall view" /></td>
<td>Photo 1: East elevation overall view</td>
</tr>
<tr>
<td><img src="image2" alt="Photo 2: North elevation overall view" /></td>
<td>Photo 2: North elevation overall view</td>
</tr>
<tr>
<td><img src="image3" alt="Photo 3: Slight leaning of north parapet wall" /></td>
<td>Photo 3: Slight leaning of north parapet wall</td>
</tr>
<tr>
<td>OBSERVATIONS – CONT.</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Photo 4: South elevation overall view with possible wall bowing</td>
<td></td>
</tr>
<tr>
<td>Photo 5: Minor mortar loss near top of south wall</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

GREEN CONDITION – based on visual observations of the exterior, the owner surveys reported information from the interior of the structure, further assessment of the structure is not indicated

YELLOW CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior of the structure, further assessment of the structure is warranted in the near future

RED CONDITION – based on visual observations of the exterior of the structure, the owner surveys and/or reported information from the interior, immediate assessment of the structure is warranted

CMU: Concrete Masonry Unit

CONCRETE: Mixture of portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

CORROSION: Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

DEFLECTION: A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

DELAMINATION: In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

DETERIORATION: Disintegration or chemical decomposition of a material during service exposure.

DIAGONAL CRACK: An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

DURABILITY: The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

EFFLORESCENCE: A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

FAÇADE: The exterior finishes of a parking structure which may consist of various forms of concrete, brick, stone, metal panels, or other materials which are suitable for exterior exposure.

HAIRLINE CRACKING: Small cracks of random pattern in an exposed concrete surface.

JOINT SEALANT: Compressible material used to exclude water and solid foreign material from joints.

MAINTENANCE: Taking periodic actions that will either prevent or delay damage or deterioration or both.

PEELING: A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

REINFORCEMENT: Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

SCALING: Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal.

SERVICE LIFE: Estimated time until the onset of deterioration which leads to distress (i.e. cracking, spalling/flaking, pitting, debonding, delaminations, section loss, and an eventual loss of integrity of an element.

SHRINKAGE CRACKING: Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

SOFFIT: The underside of a structural member typically observed overhead from the floor level below such as the bottom-face of a beam or the bottom of a floor slab.

SPALL: A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.
LIMITATIONS

This report has been prepared to assist City of Jefferson understand the nature and type of distress surveyed in this study and determine a future course of action. Walter P Moore surveyed exterior masonry walls of the historic structures enumerated in our Agreement.

Walter P Moore has no direct knowledge of, and offers no warranty regarding the condition of interior structural framing, concealed construction, or subsurface conditions beyond what was revealed in our review. Any comments regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with current standard of care and professional practice.

Various other non-structural, cosmetic and structural damage unrelated to this survey may have been observed throughout the structure, some of which are discussed in general in this report. However, a detailed inventory of all cosmetic, nonstructural and structural damage was beyond the scope of our survey. Comments in this report are not intended to be comprehensive but are representative of observed conditions. In this study we did not include review of the design, review of concealed conditions, or detailed analysis to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The survey also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction. Repair recommendations discussed herein are conceptual and will require additional engineering design for implementation.

We have made every effort to reasonably present the various areas of concern identified during our site visits. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them in a timely manner.

This report has been prepared on behalf of and for the exclusive use of the City of Jefferson. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without prior written consent.