2880 South Locust Street Garage: Rehabilitation Feasibility Report

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1.0 EXECUTIVE SUMMARY

The Plaza de Monaco Towers Condominium Association, Inc. commissioned this feasibility study to evaluate three options for repair or replacement of the existing deteriorated parking garage at 2880 South Locust Street in Denver, Colorado. The three options considered in this report, coordinated with Ownership, are repair of the existing structure and waterproofing systems, demolition and replacement of the parking garage to match the current configuration and layout, and demolition and replacement of the parking garage with an on-grade parking lot. The intent of the study is to provide the Owner with information to help them determine if repair of the existing deterioration of the structure is prudent or if replacement options should be considered.

Project Goals:

- Provide conceptual information for a Contractor to provide pricing for the three options:
  - Option 1: Repair the deteriorated parking structure and waterproofing systems.
  - Option 2: Demolish the existing two-story parking structure and replace it with a new two-story parking structure.
  - Option 3: Demolish the existing two-story parking structure and replace it with an on-grade parking lot.

- From the narrative and costs provided by a General Contractor engaged directly by Ownership, the Plaza de Monaco Condominium Association, Inc. can decide if the existing parking structure should be repaired or replaced.

Technical Considerations:

- Architectural: This portion of the report will discuss revisions to the code since the garage was first built which affects the current work, overall stall count, parking stall size and layout. Also covered will be any American with Disabilities Act (ADA) considerations including number of required accessible stalls, placement of accessible stalls around the site, and overall paths of travel from ADA stalls to building components. New mechanical, electrical, and plumbing (MEP) equipment and systems should be considered in the project pricing.
- Structural (repair): This section will describe work required to repair the deteriorated structure and waterproofing systems to get the garage back to a baseline level of integrity such that routine and preventative maintenance can resume.
- Structural (replace): This portion of the report will provide a conceptual narrative for the replacement structure, including information about foundations, perimeter walls and vehicle guards, and floor framing to support the second level.
- Civil: Considerations include utility improvements, grading and drainage, pavement, erosion and sediment control, permitting and coordination.

Cost Estimate:

The estimated cost for the three options will be provided by a General Contractor based on the information provided in this report. We recommend that pricing be solicited from at least three Contractors with experience with repair or replacement of existing parking garage structures.

2.0 INTRODUCTION

Figure 1: Aerial View of the Plaza de Monaco Parking Garage

The original building drawings for the facility are dated March 17, 1972, and include all disciplines relevant to our study. The existing two-story parking structure occupies a footprint of approximately 336 feet by 62 feet for an area of 21,000 square feet per level for a total of 42,000 square feet. The current parking striping provides a total of 134 parking stalls, including 66 stalls on the upper level and 68 stalls on the lower level. The upper-level functions as an open-air parking surface. The lower level is enclosed and has mechanical ventilation for vehicle exhaust gases. The garage has electrified lamps and stormwater drains throughout. There are two vehicle entrance ramps on the southwest side and two vehicle exit ramps on the northwest side of the garage. One vehicle ramp serves the lower level and one serves the upper level at each location. Pedestrians can access the upper level from the west side along Locust Street and can access the lower and upper level from various entrance and exit points along the east side.

The garage is situated within a developed residential site that includes two seven-story residential buildings, on-grade asphalt parking areas, concrete sidewalks**,** landscaped areas, a detention pond, a pool and pool house, and a recreation building. Four additional residential buildings are located toward the eastern portion of the site. Overall site grades generally slope from the southwest corner to the northeast corner. Stormwater runoff across the site generally drains via surface flow toward inlets and downstream drainage facilities. The original construction documents indicate that the lower parking level finish floor elevations slope down from south to north from approximately 5328.0 (south) to 5324.0 (north). The upper-level elevations also slope down from south to north from approximately 5338.0 (south) to 5334.0 (north).

Existing utilities, including water, sanitary sewer, storm sewer, electrical, telecommunications, and other utility services, are assumed to serve the parking garage and adjacent residential buildings. However, available utility record information was limited at the time of report preparation. It is possible that some of these existing utility services may traverse beneath or through the garage structure to serve adjacent residential buildings.

3.0 OPTION 1: REPAIR THE EXISTING PARKING STRUCTURE

This report section will describe the work required to repair the existing parking structure to a baseline condition. Baseline condition is considered the condition at which the structural integrity has been restored, and the waterproofing systems have been repaired or replaced and are once again functional. The baseline condition is such that regularly scheduled routine and preventative maintenance can begin again to preserve and extend the service life of the parking garage.

The existing parking garage structure is in poor condition. Significant concrete member reconstruction and some concrete member replacements are required to return the structure to a baseline condition. Two columns are in poor condition and should be replaced (Photo 1). We suspect that if repair of these elements is attempted, hidden damage will be discovered during construction which will necessitate total replacement. Several wall panels have bubbled paint and staining which suggests that the concrete section has been saturated with chloride-laden snow melt for decades and that the embedded reinforcing steel is likely damaged beyond repair (Photo 2). These wall panels are identified for replacement in the Repair Cost Table. Other concrete walls are deteriorated and require repairs, some will be partial-depth repair only, and others will include full-thickness replacement over a portion of the wall.

Photo 1 – Deteriorated Column

Photo 2 – Deteriorated Precast Wall Panel

Some concrete beams are deteriorated and require repair or replacement dependent on the extent of damage uncovered during construction (Photo 3). We have used our experience with similar projects in the Colorado region to anticipate which beams can be repaired, and which need to be replaced below in the Repair Cost Table. Precast concrete double-tees are in poor condition and repairs are required to flanges and bearing zones, and in some cases external strengthening is required to supplement deterioration around the support (Photo 4). Various concrete repairs are required at the upper-level parking surface before new waterproofing systems can be installed.

Photo 3 – Deteriorated Concrete Beam

Photo 4 – Deteriorated Precast Double-Tee

The structural repairs should be completed first, then waterproofing system improvements should be implemented immediately after to protect the integrity of the repairs. Waterproofing system repairs include replacing joint sealants and installation of elastomeric surface-applied coatings rated for vehicle traffic. These products will require scheduled maintenance on an annual basis to maintain the integrity of the waterproofing system and full replacement will be necessary 10 to 12 years from installation date.

Currently, shoring is installed at select locations dictated by Ownership as indicated in the Immediate Shoring Drawings issued by Martin/Martin, Inc., dated October 31, 2025. We have identified three additional locations of double-tee stems during our assessment which require immediate shoring. Shoring needs to remain in place until structural repairs are completed.

We have included a row in the cost table to replace the exterior wall coating around the perimeter of the garage at the completion of the repair project to match the current aesthetic. We have not included any upgrades to the current stormwater drainage system, garage lighting, forced air ventilation system, or other existing mechanical systems in the garage in the Repair Cost Table, we have focused exclusively on required structural repairs and recommended waterproofing system installation. We recommend that the General Contractor visit the site to confirm existing conditions for pricing.

3.1 Repair Cost Table

Work Item	Repair Description	General Location	Approx. Quantity	Unit
1	Install shoring at double-tee stem to grade. *	Underside of Upper Level	20	LOC
2	Install temporary shoring at double-tee stem and precast ledger beam to grade.	Underside of Upper Level	55	LOC
3	Repair deteriorated double-tee stem.	Underside of Upper Level	125 (53 stems)	SF
4	Install FRP strengthening at double-tee stem. For pricing assume 8” single layer strips at 12” OC, two strips each location.	Underside of Upper Level	47	LOC
5	Install concrete double-tee stem enlargement. For pricing purposes, assume reinforced stem enlargement width of 1'-2" over a length of 6'-0" from the end of the double-tee stem.	Underside of Upper Level	6	LOC
6	Jack double-tee stem to a calibrated loading rating.	Underside of Upper Level	20	LOC
7	Replace existing corbel with a hot-dipped galvanized steel support. For pricing assume 5x5x3/8x5’-0” steel tube supported on the wall with two steel plates and post installed anchors.	Underside of Upper Level	20	LOC
8	Replace corroded steel corbels. For pricing purposes, assume a 2'-0" long W6x15 attached to precast concrete wall with eight post installed anchors.	Underside of Upper Level	2	LOC
9	Replace existing deteriorated reinforced concrete column down to foundation.	Northwest and Southwest Courtyard Columns	2	LOC
10	Allowance to repair deteriorated concrete at existing grade beams and top of drilled piers.	Northwest and Southwest Courtyard	100	SF

Work Item	Repair Description	General Location	Approx. Quantity	Unit
11	Replace deteriorated concrete beam above doorway.	Northeast Pedestrian Walkway	10	LF
12	Replace deteriorated precast concrete crash wall.	Courtyard	20	LF
13	Replace deteriorated load -bearing precast wall down to footing. Include the cost to excavate around the existing wall and place back to match existing.	Lower Level East Wall Segments	6	LOC
14	Repair spalling and delaminated concrete on precast concrete walls. For pricing purposes, assume a 2" repair depth.	Upper Level and Lower Level	200	SF
15	Perform full-width concrete wall repair.	Lower Level and Upper Level	80	SF
16	At full-width concrete wall repairs under the ramps to the upper level, temporarily remove approach apron, replace full width of wall, install below-grade waterproofing, recompact soil and install new approach apron per work item 17.	Underside of Upper Level at Exit Ramp Wall	35	SF
17	Remove and replace ramp concrete approach aprons. Include replacement of the existing deicing system with new in pricing.	Upper Level Entrance and Exit Ramps	1,200	SF
18	Replace façade panels above entrance and exit ramps to Lower Level.	Upper Level	4	LOC
19	Repair broken precast wall panel connections. For pricing assume replacement connections are steel plate or steel angles attached to concrete with post-installed anchors.	Lower Level and Upper Level	90	LOC
20	Reconstruct the deteriorated precast L-beam.	Underside of Upper Level	10	SF
21	Repair delaminated concrete spalls and corroded reinforcing bars on overhead and vertical surfaces. For pricing purposes, assume average repair depth is 2" and installing 60-gram galvanic anodes at 12" on center at perimeter of repair area.	Underside of Upper Level	300	SF

Work Item	Repair Description	General Location	Approx. Quantity	Unit
22	Repair horizontal spalls and delaminations in concrete slab. For pricing purposes, assume an average repair depth of 3".	Upper Level	400	SF
23	Perform full-depth concrete slab repairs. For pricing purposes, assume 60-gram galvanic anodes at 12" on center at perimeter of repair area.	Upper Level	75	SF
24	Repair broken double-tee flange-to-flange connections. Install new carbon fiber biscuits at a spacing to match existing flange-to-flange connections. For pricing purposes, each location represents one biscuit.	Upper Level	70	LOC
25	Remove and replace existing steel tube connections at the underside of the expansion joint.	Underside of Upper Level	20	LOCS
26	Remove existing horizontal joint sealants and re-seal with polyurethane.	Upper Level	2,300	LF
27	Remove existing cove joint sealants and re-seal with polyurethane.	Upper Level	775	LF
28	Remove existing vertical joint sealant between precast concrete walls.	Upper Level	1,000	LF
29	Install an epoxy and sand overlay onto work concrete horizontal slab surfaces to level out all pitted and scaled areas. For pricing purposes, assume average thickness is 3/16"	Upper Level	650	SF
30	Mechanically prepare existing concrete surfaces to CSP 3 to 5 and install a two-component heavy duty vehicle rated polyurethane traffic coating. Extend traffic coating up 4" at all vertical surfaces including curbs. (Alternate - Pricing note 3)	Upper Level	21,000	SF
31	Restripe areas that received traffic coating to match the original parking layout.	Upper Level	1	LUMP SUM
32	Install wall coating to match existing aesthetic following structural repairs. Add parking stall numbers to match existing.	Upper and Lower Level	1	LUMP SUM

Work Item	Repair Description	General Location	Approx. Quantity	Unit
33	General Conditions	Parking Garage	1	LUMP SUM
34	Inspections and Testing	Parking Garage	1	LUMP SUM
35	Contingency	Parking Garage	1	LUMP SUM

Table Notes:

1. All repair areas are likely to expose deteriorated embedded reinforcing. Include a minimum area of supplemental reinforcing of two pounds of reinforcing per square foot of repair area, unless noted otherwise.
2. All member replacements will be detailed with reinforced concrete, for pricing assume that one percent of the cross-sectional area of the member will be detailed with steel reinforcement unless noted otherwise.
3. At the Owner's option, a premium traffic coating could be installed as an alternate to a basic traffic coating system. There is a higher investment initially and lower long term maintenance costs. These systems are called PUMA/PMMA traffic coating systems.
4. When comparing Option 1 repair costs to Option 2 and 3 replacement costs, consider the National Parking Association prices routine and preventative maintenance for an existing structure in baseline condition at $150 to $240 per parking space per year. Routine and preventative maintenance for a new parking structure or for a new surface lot would be significantly less than this.

*****There are 17 double-tee stem locations that are currently shored per the Immediate Shoring Drawings issued by Martin/Martin, Inc., dated October 31, 2025. Three additional double-tee stems were found during our site visits which we recommend be shored immediately.

4.0 OPTION 2: DEMOLISH AND REPLACE EXISTING PARKING STRUCTURE WITH NEW TWO-STORY PARKING STRUCTURE

4.1 Architectural Narrative

This option recognizes that the existing two-story parking structure is in a deteriorated condition and requires significant structural repairs. Demolishing the existing garage and rebuilding it in substantially the same way is an option to solve the deterioration issues while bringing every other aspect of the garage up to current code. Ultimately this option will produce a safe building and may also provide opportunities for other assorted enhancements.

4.1.1 Code Revisions

The most relevant code change as it relates to parking garages comes from the Americans with Disabilities Act (ADA) which took effect in 1990. These changes affect the acceptable design slopes of the parking garage, the allowable clear height of the lower level, and pedestrian ingress and egress. In addition, the City of Denver parking ordinance no longer requires a certain number of stalls per project type. This allows the overall site the ability to lose some parking stalls and remain compliant.

4.1.2 Parking Stall Size, Layout, and Clearance Height

Standard parking stall size requirements are governed by local jurisdictions while accessible parking stalls are governed by the ADA guidelines and are usually codified within local and state building codes. The City of Denver requires that parking stalls be a minimum of 17 feet, 6 inches long by 8 feet, 6 inches wide. Parking angles can range from 30 degrees, 45 degrees, 60 degrees, 75 degrees, and 90 degrees.

The most efficient parking stall angle is 90 degrees which is what is existing and is what we recommend for the new structure. From the existing drawings and site verification, it appears that the existing parking layout originally used 18-foot-long-by-9-foot-wide stalls. Since this is greater than what is currently required, Ownership could gain approximately nine parking stalls at both levels of the garage.

The existing floor-to-floor height of the garage appears to be approximately 10 feet 9 inches with a 2-foot-11-inch second floor structure depth. This makes the clearance at the lower level approximately 7 feet, 10 inches. Current code requires just 7-foot head clearance at standard stalls and 8-foot-2-inch clear where accessible van stalls are provided. Since our recommendation will be to not place any accessible stalls in the garage, it is possible to lower the second floor deck (or raise the first level slab) by around 10 inches depending on the depth of light fixtures, fire sprinklers, signage, or any other accessories attached to the underside of the second-level slab. This is explained in further detail in the following section.

4.1.3 ADA Requirements

This parking structure was designed and built prior to the enactment of the Americans with Disabilities Acts. All new additions or major renovations to a facility usually require ADA upgrades as a condition of approval. In this case, the number of ADA stalls is determined by the total number of parking spaces provided as per the following chart:

Total Number of Parking Spaces Provided in Parking Facility (per facility)	(Column A) Minimum Number of Accessible Parking Spaces (car and van)	Mininum Number of Van-Accessible Parking Spaces (1 of six accessible spaces)
1 to 25	1	1
26 to 50	2	1
51 to 75	3	1
76 to 100	4	1
101 to 150	5	1
151 to 200	6	1
201 to 300	7	2
301 to 400	8	2
401 to 500	9	2
500 to 1000	2% of total parking provided in each lot or structure	1/6 of Column A*
1001 and over	20 plus 1 for each 100 over 1000	1/6 of Column A*
*one out of every 6 accessible spaces		

Figure 2 Required Accessible Parking Spots

Currently there are a total of 325 parking stalls provided on the site including the parking garage and distributed around the two towers and the four residential buildings to the east. Since the whole site is considered when addressing number and location of accessible stalls, the parking garage can be excluded from requiring any ADA stalls if all ADA stalls are distributed around the rest of the site, which seems to be the existing case. Not having to provide accessible stalls in the parking garage reduces the height of the floor-to-floor requirements, which would be a possible cost savings. Another cost savings would include not having to provide accessible ramps from the upper level down to the existing grade level or up from the lower level to the existing grade. If provided, these ramps would be approximately 100 feet in total length and present a significant cost. Signage should be provided to direct any visitors requiring accessible stalls to the surface parking lot adjacent to the southernmost tower where we recommend any new accessible stalls be provided.

The recommendations for Option 2 are to provide a new two-story parking garage with a total of approximately 144 17-foot-6-inch-by-8-foot-6-inch standard parking stalls with four vehicle ramps and egress stairs provided similar as to what currently exists. Additional on-site surface parking may require modifications to fulfill ADA accessible parking requirements, including paths of travel. We do not expect that any ADA spaces will be necessary in the new parking garage structure.

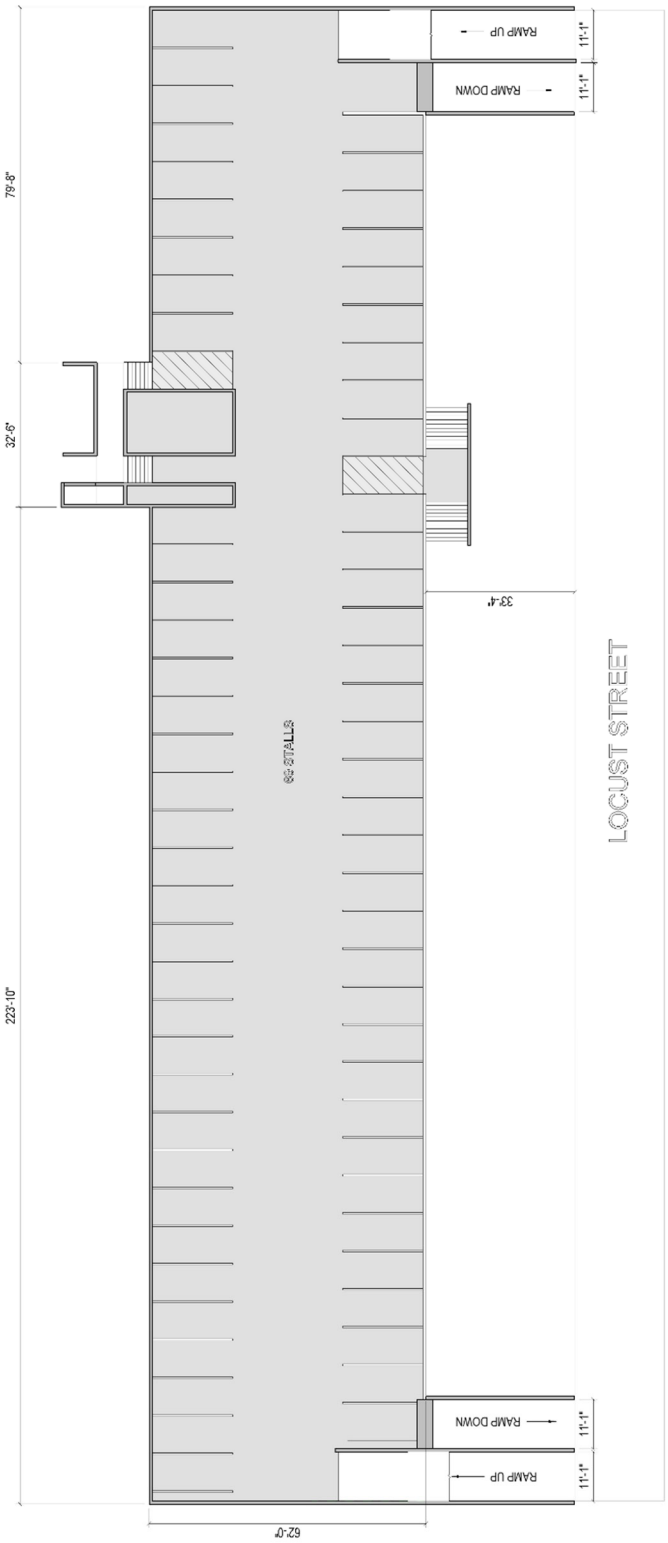

Figure 3 Lower-Level Parking Plan

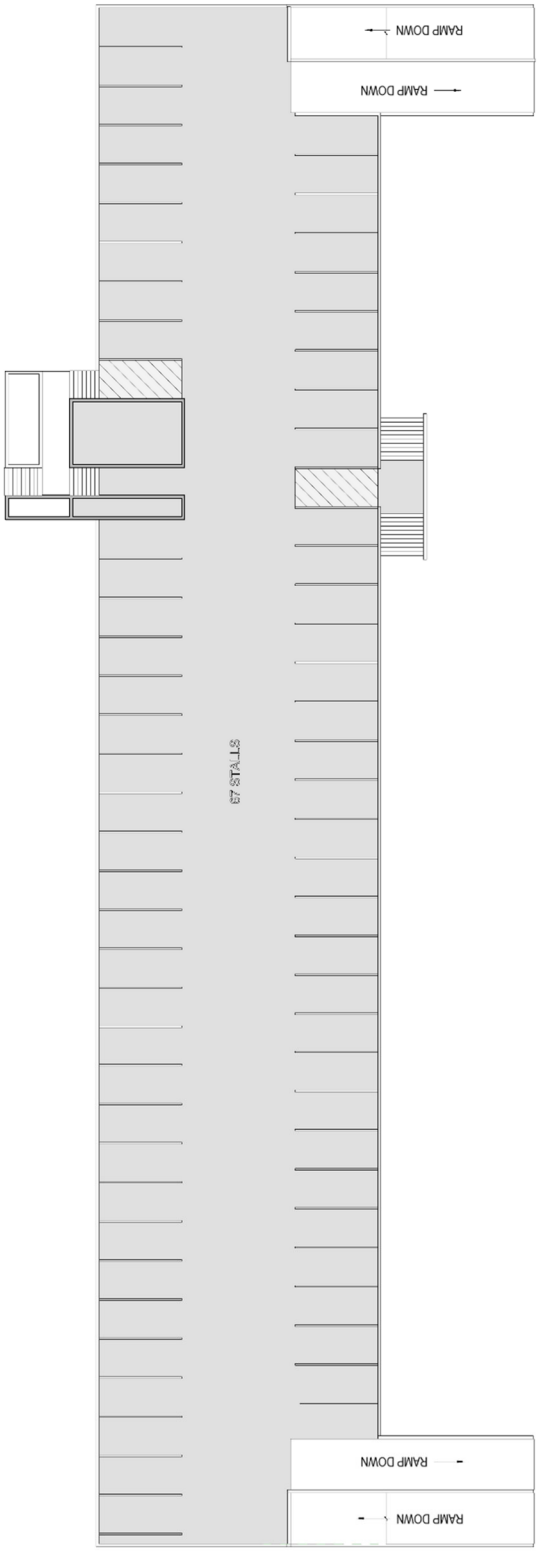

Figure 4 Upper-Level Parking Plan

4.1.4 Mechanical, Electrical, and Plumbing Equipment

The new parking garage should be equipped with mechanical, electrical, and plumbing equipment similar to the existing parking structure. Equipment to be considered for pricing includes ceiling mounted lighting in the lower level, light poles on the upper level, and floor drains and drain piping above and below the slab. Detailed stormwater and sewer requirements are described in the civil engineering section. Mechanical ventilation of the garage will be necessary since it is situated partially below-grade and does not have adequate perimeter openings to permit natural ventilation. Electrical vehicle charging and parking control systems are not included in the current condition and should not be included by the pricing Contractor in the base price for Option 2 unless directed by Ownership to do so.

4.2 Structural Engineering Narrative

4.2.1 Design Criteria

A. Building Code: 2024 International Building Code with City of Denver Amendments

1. Risk Category II

B. Loading:

1. Parking: 40 psf/ 3,000-pound point load
2. Exits and Stairs: 100 psf
3. Ground Snow Load: 43 psf
4. Combined Parking and Roof Snow Load: 90 psf
5. Basic Ultimate Wind Speed: 138 mph
6. Seismic Design Category (pending Geotech report): B

4.2.2 Geotechnical and Foundations

A geotechnical study is not yet available. Assumptions made in this section will be verified by a completed geotechnical report which will provide foundation recommendations.

A. Drilled Piers:

1. Abandon existing foundations and install drilled pier foundations to avoid extensive testing required to evaluate the existing foundation for reuse. Drilled pier foundations will be drilled into and extend into bedrock. All piers will be vertically reinforced and tied with horizontal ties. Piers will have vertical reinforcement ratios varying from 0.5 percent to 1.5 percent. A single pier diameter can be used for the project with the amount of embedment in bedrock and a diameter between 18 inches and 36 inches pending the geotechnical recommendation. Dowels will extend from the piers into the walls.

2. Alternate: Pending the results of a geotechnical evaluation, shallow foundations may be an option.
3. Alternate: Existing foundations can be investigated to be reused for the new structure. A geotechnical study would be required to evaluate the feasibility of reusing the existing drilled piers and to establish the necessary design requirements for their reuse. This study would include testing such as pile integrity assessment to confirm existing pier depths and determine whether reuse is a viable option.

B. Basement Walls:

1. Cast-in-place walls can make up the perimeter of the structure. Walls can be 8 inches to 10 inches thick for soil retention but may be made thicker (up to 16 inches) to facilitate a better-distributed bearing condition for the elevated structure above. The basement wall will extend up 48 inches beyond the parking deck elevation with a 6-inch-thick section to create a vehicle barrier wall similar to how the existing garage is constructed. A thicker portion below the parking deck can be set such that the transition in wall thickness creates a ledge for the parking deck framing to bear on. The cast-in-place wall will allow for more architectural flexibility for openings to allow natural light into the lower parking level.
2. Alternate: Precast wall segments, either as solid flat walls or as double-tees oriented vertically, could be used instead of cast-in-place walls. This would likely be a construction cost and schedule savings, although it would require higher-level and more frequent maintenance attention. The precast walls would be set with anchors on drilled pier caps.

C. Slab-on-Grade:

1. The lower level will be a 5-inch slab-on-grade. The slab will incorporate steps, slopes, and curbs as required for architecture and drainage. The slab will be reinforced with approximately 1 psf of miscellaneous bar and a welded wire reinforcing mesh.

D. Entrance/Exit Ramps

1. The ramps will be on-grade with a similar construction as described for the parking level slab-on-grade. Cantilevered retaining walls will bound the ramps.

4.2.3 Superstructure

A. Building Walls

1. As described in the foundation walls section, the basement walls will extend above the parking deck structure to form perimeter vehicle barrier walls.

B. Interior Partition Walls

1. Interior partition walls on the lower level of parking will be constructed with lightly reinforced CMU. These walls will have a vertically slipped top steel connection.

C. Elevated Parking Deck

1. The elevated parking deck structure will consist of 28-inch-deep precast double-tees (DT) that will span the entire approximate 60-foot span of the garage in the short direction. The DTs will be field topped with a 3-inch minimum concrete topping. The DTs will be set to a slope, and the topping will incorporate localized washes and crickets to facilitate drainage of the top surface. The concrete topping will be reinforced with approximately 1.5 psf of miscellaneous bar and a welded wire reinforcing mesh.

4.2.4 Miscellaneous Criteria

A. Form Material

1. Exposed surfaces will be formed with new or undamaged steel, fiberglass, coated plywood, or high-density overlaid plywood of sufficient thickness and strength to prevent visible bowing.

B. Garage Slab Protection

1. All exposed concrete will have a minimum 28-day strength of 5,000 psi. The precast topping parking surface will have a calcium nitrite corrosion inhibitor and a minimum top cover of 2 inches to reinforcement.

4.2.5 Special Inspections

In addition to the Contractor's quality control systems and periodic observations by the structural engineer, the Owner will be required to retain independent special inspection services in conformance with the 2024 International Building Code and Denver Amendments.

4.3 Civil Engineering Narrative

Recommended Civil engineering major redevelopment site activities related to the demolition and reconstruction of the parking garage include the following:

4.3.1 Utility Improvements

A. Obtain a topographic design survey including property boundaries, adjacent public rights-of-way, and existing utilities (verified with utility records and field locates).

Additional exploratory potholing and mapping of key utility services, crossings, and removals may also be warranted.

B. Disconnect, abandon, or cap existing water, sanitary sewer, storm sewer, electrical, and telecommunications services serving the garage, as appropriate, in accordance with the requirements of the utility providers or Authorities Having Jurisdiction. Temporary utility services may be required to maintain uninterrupted service to adjacent residential buildings where existing electrical, telecommunications, or other services are impacted by demolition or construction activities. Provide permanent utility services to serve the new parking garage.

C. Interior parking garage floor drainage is anticipated to discharge to the sanitary sewer system through a new sand/oil separator, consistent with current City and County of Denver requirements and applicable wastewater and plumbing standards, subject to Department of Transportation and Infrastructure (DOTI) approval. Provide a new sanitary service connection. The presence and condition of any existing interceptors are unknown and should not be assumed for reuse. Size of the service connection will be determined by the Plumbing Engineer during subsequent design phases. Modifications to existing sanitary sewer infrastructure may be required based on field conditions and DOTI requirements. For pricing purposes, assume outside the building piping will be HDPE for storm sewer and PV SDR 26 for sanitary sewer.

4.3.2 Grading and Drainage

A. Perform all grading necessary to maintain positive drainage away from adjacent buildings and toward approved stormwater conveyance features. Final grades shall be coordinated with adjacent pavements, sidewalks, and landscaped areas.

B. Maintain existing drainage patterns with runoff flowing from southwest to northeast. Stormwater runoff generated on the exposed deck of the garage will be collected via new inlets and storm piping before discharging into existing storm infrastructure. Furnish and install surface drains and storm sewer piping to collect runoff from the upper-level parking deck and convey flows to the existing site storm sewer system or other approved discharge point. Modifications to existing storm infrastructure may be required based on field conditions and DOTI requirements.

C. Demolition sequencing and temporary support of adjacent pavements, utilities, and building access will require coordination with the structural and demolition plans. Extensive temporary excavation support is not expected to be required since there appears to be ample room to lay back the excavation at a 2:1 slope.

D. A perimeter drain will be required around the perimeter of the below-grade walls to keep water from building up behind the walls and loading the structure hydrostatically.

4.3.3 Site Pavement

A. Remove and replace concrete driveway connections and any disturbed sidewalk within or adjacent to the right-of-way along South Locust Street in accordance with DOTI standards, details, manuals, and guidelines. For pricing purposes, assume 12-inch scarification, moisture condition, and re-compaction prior to install 4-inch-thick concrete sidewalks and 8-inch-thick driveway and apron.

4.3.4 Erosion and Sediment Control

A. Obtain a Construction Activities Stormwater Discharge Permit (CASDP) in accordance with DOTI requirements. Furnish, install, maintain, and remove all temporary and permanent erosion and sediment control measures in accordance with DOTI requirements to prevent off-site sediment transport during demolition and construction.

4.3.5 Permitting and Coordination

A. Coordinate construction activities with DOTI and applicable utility providers. Provide information and documentation required to support jurisdictional review and permitting. A CASDP and Zoning Construction Permit (ZCP) are anticipated for the site work.

5.0 OPTION 3: DEMOLISH AND REPLACE EXISTING PARKING STRUCTURE WITH ON-GRADE PARKING LOT

5.1 Architectural Narrative

This option removes the costs of a new parking garage and any future maintenance issues by removing the existing deteriorated garage and replacing it with a surface asphalt parking lot. The new parking stall count will be approximately the same as the lower level of Option 2 (68 parking stalls) and our recommendation for location of accessible parking stalls remains as per Option 2 – distributed across the site. We recommend raising the level of the new surface lot to the approximate height of the adjacent grade, removing the need for stairs up from what would be a sunken parking lot.

Our recommendation for this option is to provide a new surface parking lot of approximately 72 spaces. Additional guardrails may be required depending on the change in elevation adjacent to the existing sidewalks. Light poles throughout the parking area should be provided.

5.2 Civil Engineering Narrative

Recommended Civil engineering major redevelopment site activities related to the demolition and construction of an at-grade surface parking lot include the following:

5.2.1 Utility Improvements

A. Obtain a topographic design survey including property boundaries, adjacent public rights-of-way, and existing utilities (verified with utility records and field locates). Additional exploratory potholing and mapping of key utility services, crossings, and removals may also be warranted.

B. Disconnect, abandon, or cap existing water, sanitary sewer, storm sewer, electrical, and telecommunications services serving the garage, as appropriate, in accordance with the requirements of the utility providers or Authorities Having Jurisdiction. Temporary utility services may be required to maintain uninterrupted service to adjacent residential buildings where existing electrical, telecommunications, or other services are impacted by demolition or construction activities. Provide permanent utility services to serve the site lighting and storm drainage infrastructure.

5.2.2 Grading and Drainage

A. Place engineered structural fill to raise the site approximately 8 feet following demolition of the existing parking garage. Fill placement shall be per a Geotechnical Engineer's recommendations and shall include excavation and removal of unsuitable materials, moisture conditioning, compaction and testing as required to support pavement and vehicular loading. The feasibility, cost, and constructability of the required fill placement will be subject to geotechnical recommendations, slope and

retaining requirements, and downstream drainage constraints. For pricing purposes, assume the following materials:

1. Structural Fill: Controlled Low Strength Material (CLSM); CDOT Class 4 or 6 Aggregate Base Course.
2. Subbase/Base: CDOT Class 4 or 6 Aggregate Base Course.
3. Existing concrete parking structure may be processed and re-used subject to the following: meet CDOT Class 6 Aggregate Base Gradation, pass durability testing, be free of asphalt, rebar, brick, deleterious materials, be well processed, meet compaction criteria, and be accepted by a Geotechnical Engineer.

B. Regrade the site to accommodate surface parking, providing positive drainage to defined drainage paths and minimizing ponding within parking areas and along pedestrian routes. Final grades will transition smoothly to adjacent pavements, sidewalks, landscaped areas, and building entrances.

C. Maintain existing drainage patterns with runoff flowing from southwest to northeast. Stormwater runoff on the surface lot will be collected via new inlets and storm piping before discharging into existing storm infrastructure. Modifications to existing storm infrastructure may be required based on field conditions and DOTI requirements.

D. Demolition sequencing and temporary support of adjacent pavements, utilities, and building access will require coordination with the structural and demolition plans. Extensive temporary excavation support is not expected to be required since there appears to be ample room to lay back the excavation at a 2:1 slope.

5.2.3 Pavement and Striping

A. Place Hot Mix Asphalt (HMA) over an approximate 21,000 square-foot area. Mix design and thickness to be specified by a Geotechnical Engineer in subsequent design phase. For pricing purposes, assume a 4-1/2-inch thick HMA at parking areas and 6-1/2-inch-thick HMA in the drive aisle.

B. Remove and replace concrete driveway connections and any disturbed sidewalk within, or adjacent to, the right-of-way along South Locust Street in accordance with DOTI standards, details, manuals, and guidelines. For pricing purposes, assume 12-inch scarification, moisture condition, and re-compaction prior to install 4-inch-thick concrete sidewalks and 8-inch-thick driveway and apron.

C. Place 4-inch solid white parking striping at parking stalls in accordance with section 627-Pavement Markings, of the Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction, latest edition.

5.2.4 Erosion and Sediment Control

A. Obtain a Construction Activities Stormwater Discharge Permit (CASDP) in accordance with DOTI requirements. Furnish, install, maintain, and remove all temporary and permanent erosion and sediment control measures in accordance with DOTI requirements to prevent off-site sediment transport during demolition and construction.

5.2.5 Permitting and Coordination

A. Coordinate construction activities with DOTI and applicable utility providers. Provide information and documentation required to support city review and obtain all applicable permits. A CASDP and ZCP are anticipated.

5.3 Individually Owned Parking Space Considerations

If Option 3 is chosen, the Association will need to work with its legal counsel to determine the appropriate process for revising the individually owned parking spaces in the parking garage. Martin/Martin, Inc. is available to provide plans showing the revised parking layout, stall numbers, and survey information necessary to support the change in ownership.

6.0 CONCLUSION

This report has summarized the recommendations and conceptual design for the three options for the rehabilitation of the Plaza de Monaco parking garage and is intended to provide sufficient information for a General Contractor to provide rough order of magnitude pricing for each option.

7.0 LIMITATIONS

This report is based on conditions of existing elements that were readily observable at the time of our visit, and limited record information. No invasive testing or inspections were performed. Martin/Martin, Inc. does not accept responsibility for deficiencies not evident during a study of this type. We conducted our study and prepared this report in accordance with the professional and industry standards prevailing at the time such services were rendered. This report does not provide any kind of guarantee or warranty on our findings and recommendations. Our assessment was based on and limited to the agreed scope of work.

This report contains information which is time-sensitive and was prepared subject to the particular scope limitations, budgetary and time constrains, and business objectives of the Client. If any questions arise with respect to the scope or meaning of the statements or conclusions, immediately contact us for clarification, explanation, or to update this Report.

This Report is intended for planning purposes and budgeting for future rehabilitation of the parking deck. The work described requires survey, utility investigation, geotechnical evaluation, agency coordination, and development of architectural and engineering drawings and specifications before construction can begin.

We appreciate this opportunity to be of service. Please call us at (303) 431-6100 if you have any questions regarding this report or if we may be of further assistance.

Respectfully submitted,

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Reviewed by:

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