



WALKER
PARKING CONSULTANTS

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October 1, 2004

Mr. Buick Alavy
City of Minneapolis
Property Services
350 South 5th Street, Room 223
Minneapolis, MN 55415

Re: Annual Observation Report
Seven Corners Parking Facility
1504 Washington Avenue South
Minneapolis, Minnesota
Walker Commission No. 21-3215.00

Dear Mr. Alavy:

In conformance with the City of Minneapolis inspection requirements for parking ramps, the following is a summary of the structural condition of the Seven Corners Parking Facility.

Walker completed a third year field observation of the parking facility to review the condition of the structural elements.

FACILITY DESCRIPTION

The Seven Corners Parking Facility was constructed in two phases. Phase I was built in 1983 and Phase II was built in 1984. The entire structure is a cast-in-place, post-tensioned concrete floor slab and beam system supported on conventionally reinforced columns. Phase I is approximately 236 feet long by 104 feet wide and Phase II is approximately 243 feet long by 104 feet wide. There are four supported levels with a floor area of 195,000 square feet and a slab-on-grade with a floor area of 53,000 square feet. The supported floor consists of a 5-1/2 inch to 6-inch thick concrete slab supported on post-tensioned concrete beams typically spaced at about 22 feet on center. Epoxy coated reinforcing steel was used in the top portion of the floor slab. A corrosion inhibiting admixture (DCI, by W.R. Grace Co.) was added to the concrete used in the beams and floor slabs. A dosage rate of 3.5 gallons per cubic yard of concrete was typical. In addition, a concrete sealer was applied to the slab surface upon completion of construction and again in 1989 and 1994.

Access to and from the facility is via the street level entry/exit on Washington Avenue located at the south side of the building. The parking facility is a double threaded helix design with one-way traffic and angled parking throughout. A stair tower and a stair/elevator tower are located at the south side of the facility. The facility provides parking for approximately 762 vehicles.



VISUAL OBSERVATION SUMMARY AND CONCLUSIONS

During the course of our visual observation of this parking facility, we did not observe any conditions, which would restrict the facility from qualifying for an operating certificate. Limited overhead concrete removals to reduce the hazard of falling concrete are recommended. However, hidden or latent conditions may exist in this facility, which have not yet revealed themselves through visual evidence and may require removal in subsequent years. The following is a summary of conditions noted:

1. Unsealed and leaking floor slab cracks are isolated throughout.
2. Spot failures and isolated leaking of expansion joints.
3. Concrete floor, column, and ceiling delaminations in limited areas.
4. Isolated floor spalls at the slab-on-grade.
5. Wall spalls at isolated locations.
6. Beam cracks and delaminations at isolated locations.
7. Worn and damaged traffic topping throughout, primarily in drive aisles.
8. Weathered/deteriorated construction joints and cove sealants.
9. Adhesive and cohesive joint sealant failures were observed between the structure and the stair towers at all levels.
10. Spot failures of floor slab construction joint sealants were observed leaking.
11. Rust staining on ceiling and walls.
12. Rust developing on window frames in elevator lobbies.
13. Water staining and leaching on inside face of exterior spandrels and walls.
14. Missing cove sealant at spandrel/slab connections.
15. Delaminated/debonded grout plugs on precast façade panel connections.
16. Weathered/deteriorated façade panel joint sealant.
17. Settled concrete and trip hazards at the north and south pedestrian entrances at slab-on-grade.
18. Isolated light fixtures were not illuminated.
19. Stair tread nosings were noted missing at isolated locations at the east stair tower.
20. Isolated concrete delaminations were observed at stair treads and underside of stairs at the east stair tower.
21. Electrical junction box cover was partially opened exposing wires at the sign above the north exit.

Leaking construction joints, expansion joints, or cracks can contribute to corrosion of embedded post-tensioning tendons and anchors and reinforcing steel. Corrosion of embedded post-tensioning tendons and anchors can adversely affect the structural integrity of the floor slab; therefore, all joints and slab cracks should be sealed and maintained annually.

It should be noted that Walker Parking Consultants/Engineers, Inc. has not performed a structural review to verify the structural adequacy of the original design, as this is not within the scope of work. During our review, we did not observe deterioration to be indicative of inadequate original structural design or construction.



CERTIFICATION

The City of Minneapolis Ramp Certification Ordinance requires that the engineer state whether the structure is capable of supporting the loads for which it is used. This structure is primarily used for the parking of passenger cars and, in our opinion, presently is capable of supporting that load.

Our recommendations include the continuation of annual structural maintenance, removal of all loose concrete overhead as it is detected, schedule crack and construction joint sealant replacement for the 2005 construction season, budget for traffic topping, and remaining items noted above. We recommend that test wells be excavated at the fifth level pour strip along Grid 14. It appears that deterioration at the pour strip area is more advanced than at other locations.

The above engineering services provided were completed by me or under my direct supervision. My field of practice is structural engineering with primary emphasis on concrete deterioration and renovation. Walker Parking Consultants/Engineers, Inc. carries the \$250,000 insurance coverage required by Section 108.80 of the City Ordinance.

If we can be of further assistance or answer any questions, please call on us.

Sincerely,

WALKER PARKING CONSULTANTS

A handwritten signature in black ink, appearing to read "Stephen D. Disch".

Stephen D. Disch, P.E.
Principal

A handwritten signature in black ink, appearing to read "Richard J. Elsner".

Richard J. Elsner, P.E.
Project Manager