

ITEM #: 3
DATE: 09-03-24
DEPT: ADMIN

COUNCIL ACTION FORM

SUBJECT: STEVEN L. SCHAIKER PLAZA UPDATE

BACKGROUND:

At the [July 9, 2024 City Council meeting](#), staff provided an update on the progress of the Steven L. Schainker Ice Skating Ribbon. The report highlighted a significant issue that has influenced the timely completion of the project: an agreement among City staff, Confluence (project lead/ landscape architect), and Henkel Construction (General Contractor) that the current ice-skating ribbon surface is "unacceptable" and does not meet the quality standards that residents expect from City facilities. The question before the parties is how to rectify this situation and produce an acceptable product.

The staff report outlined the pros and cons of two options: Option 1 - remove and replace the existing ice ribbon and Option 2 - grind the existing surface and install an overlay of Euclid product materials as proposed by Henkel. Because Confluence and City staff lack the necessary concrete expertise on how to best correct the ice ribbon deficiencies, the services of a concrete expert was engaged to review the ice skating ribbon. It should be noted that City staff approached Henkel about partnering on hiring a third-part expert. Henkel was unwilling to pay for this consultant indicating that it "do[es] not believe hiring an additional 3rd party is the best option for moving forward." Therefore, "Henkel does not support and will not pay for it."

Since the July 9 Council meeting, the City's concrete expert has evaluated the ice skating ribbon and the Euclid products proposed by Henkel to remedy the surface issues. The expert's assessment included reviewing related project documents and an on-site inspection of the ice skating ribbon. **The expert's findings were verbally shared with staff which was then captured and articulated in a letter the City Attorney sent on August 15, 2024 via certified mail to three employees of Henkel Construction (see attachment).**

A summary of the City's expert's findings regarding the work product include:

- a. Inconsistent finish of the concrete surface.
- b. Various bird baths in various sizes in the surface.
- c. Voids in several areas of the concrete.
- d. Ripples in several areas of the concrete where it appears the concrete has settled between the rink piping leaving ridges over the top of the pipes in certain areas.
- e. There is a considerable variation in the broom finish of the surface and not a uniform medium broom finish as agreed at the pre-pour meeting.
- f. Safety concerns due to extremely rough areas as people will be barefoot in the warmer months.
- g. Specifications were not followed when brought to Henkel and Everything Ice's attention.

- h. Jordison (the concrete subcontractor) indicated they would have a motorized screed to use, but did not have it at the start of the pour. Jordison kept indicating it was on the way but never showed up. Photographs taken during the pour appear to show that a “straight edge” hand operated screed was not supported at the edges in some parts of the pour.
- i. Vibration of concrete was inconsistent, random, or lacking all together, as can be viewed in the video of the concrete pour.
- j. Stone popouts on the surface.
- k. Apparent, lack of 1 ¼” of concrete over some of the Ice Rink Refrigerant Piping.
- l. The City understands that a pre-pour survey of the Ice Rink Refrigerant Piping was to be performed. This survey data has not been provided by the General Contractor to allow comparison to a final as-built elevations of the concrete surface to determine both whether there is the specified cover and variations of surface elevation.
- m. Wire mesh has protruded through the surface of the concrete in certain areas and has begun to corrode.
- n. The concrete pour has cracked in many places and those cracks need to be addressed.

(Note: The expert further noted that this list is incomplete, and the City reserves the right to add to this list of identified defects.)

In addition to sharing the findings from the City's expert, the letter also informed Henkel that the City rejects the proposal to apply the Euclid proposed materials to the ice skating ribbon (Option 2) to rectify the deficiencies for the following reasons:

- (1) The proposed materials are reported not to have been previously installed on an exterior ice skating ribbon similar to this application;
- (2) The proposed materials have not been used to repair a refrigerated slab application before;
- (3) The proposed materials and their use in this application do not come with a manufacturer’s warranty; Henkel has not proposed a labor and material warranty on the installation;
- (4) The proposed materials are generally applied to concrete with control joints, but this 6,000 sq ft slab does not have control joints;
- (5) There is no representation as to the useful or expected life of the proposed materials;
- (6) There is a recommendation in Mr. Olson’s answers that certain products be prohibited from installation at ambient temperatures in excess of 90 degrees Fahrenheit. This recommendation raises a question about the effect of ambient temperatures in excess of 90 degrees to which the product would be repeatedly exposed every summer in Ames; we do not know what effect ambient temperatures may have on the product because it appears not to have been previously installed on a similar project;
- (7) The Euco-Recover is noted as a polymer modified, fiber-reinforced concrete resurfacing mortar; it is unclear if the mortar contains an epoxy or other UV sensitive material as a modifier. If so, there may

be a concern that ultraviolet radiation may degrade over the time the useful life of the Euclid product. The data sheet received had no information regarding suitability of use for outdoor exposure;

(8) The concrete specification (Cast-in-Place Concrete, Section 033000 Paragraph 3.16) calls out requirements for repair of the slab and the repairs must meet the requirements of the specifications;

(9) The multi-layer proposed materials (system) by design and installation result in multiple bond lines between layers, which may result in cracking or delamination over the years following installation;

(10) The proposed materials (system) recommended by Mr. Andy Olson appear to be from his position as Sales Representative of Construction Products for Euclid; it is not known whether a materials scientist or professional engineer was involved with the development of the proposed material system design;

(11) The City has concerns that the installation of these proposed materials will require recurring maintenance to preserve or repair the surface, which the City would not have incurred if the design had been correctly installed as required by the Contract Documents. Persons using the area of the ice skating ribbon will have metal tables and chairs on the surface in the summer months, which expected traffic may cause scratches, marring, or other damage to the exposed proposed material surface. We believe this damage would be less likely to a concrete surface.

The letter further explains that the rejection of the proposed system does not require the ice skating ribbon be removed and replaced in accordance with the original specifications at this time. It offers that should the General Contractor want to propose other repair methods for City consideration, the City will review and consider alternatives proposed and approved by a professional engineer licensed in the State of Iowa and who possesses expertise in materials science and design of concrete repairs. Should the General Contractor pursue this alternative remedy proposal, the City requested, no later than August 31, 2024, the name of the engineer and firm the General Contractor will retain, schedule for investigation and remedial proposal, proposed schedule for doing the work, and other information as the City may request for its evaluation.

It also should be noted that independent of the ice skating ribbon issues, the letter expresses the City's concern about the work quality and the progress towards completing the remaining work at the project site. On July 17, 2024, Henkel provided City staff with an expected project completion schedule (see attachment) that, exclusive of the ice ribbon, indicated all other work would be completed by October 1, 2024. **However, due to the City not seeing adequate progress on the General Contractor's part in adhering to the schedule they provided, the letter also sought the General Contractor's assurance that by the date of October 1, 2024, all work other than the ice skating ribbon, will be completed and ready in an acceptable and final condition. It is imperative that this schedule be met, and the General Contractor needs to take steps to assure the schedule is met.**

On Friday, August 30 Henkel emailed a response to the City which included an experience summary for their engineer, his engineering investigation and evaluation report, and four documents related to suggested products, all of which is attached for your review and consideration. An updated project completion schedule, minus the ice skating ribbon issue, was not included in this response. However, on Tuesday, September 3 the updated project completion schedule was provided (see attachment).

Henkel's engineer has offered the four following options to remedy the unacceptable surface issues (pages 18-20 of Henkel's Engineering Report):

1. GRIND THE SLAB FOR UNIFORMITY

This option utilizes a large-scale floor grinder to place the slab surface profile on a uniform plane.

Pro Features

This option carries the least product performance risk. The mottled surface will be removed and only the sound concrete slab below it will remain.

Con Features

This approach will change the appearance of the surface and remove the protective cement cover over the aggregate. It will lower the slab profile relative to the surrounding edge slab.

2. GRIND THE SLAB - RESTORE VOIDS WITH COLOR MATCHED MORTAR - REGRIND

This option utilizes a large-scale floor grinder to place the slab surface profile on a uniform plane. There will still be voids in deeper areas. In this option, the voids will be prepared and filled with color matched repair mortar. The patches will then require grinding when fully cured to match the texture of the surrounding concrete.

Regular concrete restoration materials will have a different appearance from existing concrete, so it is important to utilize a color-controlled repair mortar. A leading brand of such materials is Butterfield Color MT Resurfacer manufactured by Sika Corp.

Pro Features

This option carries a low performance risk because only small amounts of patch mortar will be used. Filled voids will have the same uniform plane as the ground slab and will be finished the same. Much less material will be removed with this option than Option 1.

Con Features

This will change the appearance of the surface and remove the protective cement cover over the aggregate. It will require careful selection of repair mortar color to prevent discernable patching of voids.

3. REMOVE A TOTAL SHALLOW VOID - PLACE BONDING AGENT - INSTALL CONCRETE OVERLAY

This option utilizes scabblers, heavy shot blast, or hydro demolition to create a uniform void of approximately 1-inch deep. The surface is prepared and applied with bonding agent. Armetec 110 will be specified as a proven bonding agent. The void will then be filled with a thin overlay of conventional small aggregate concrete and finished like normal concrete. Overlays are vulnerable to shrinkage curing so this mix will require careful mix design work, shrinkage control chemicals, and excellent curing operations.

Pro Features

This option provides the surface that is closest to its original intended configuration and can be finished accordingly.

Con Features

This will be the most disruptive preparation process. Overlay mixes can be temperamental and dry out quickly if conditions are not ideal. Overlay mixes require careful proportioning and shrinkage compensation to prevent cracking and debonding.

4. GRIND AWAY RIDGES - PATCH VOIDS WITH POLYMER MORTAR - RESTORE ENTIRE SURFACE WITH POLYMER MODIFIED MORTAR

This option utilizes grinders and shot blast to prepare the surface to receive restorative patches in voids. The surface is then prepared uniformly, and the entire surface is treated with polymer modified mortar. The specified material will be SikaTop 122, a long-term proven overlay material I have extensive experience in utilizing. Its service thickness ranges from less than 1/8-inch to over 1-inch.

All protrusions will be ground down to the uniform finished plane. Next voids will be prepared with shot blast or mechanical roughening, and properly patched to a uniform surface profile. After patches have had time to cure, the entire surface including patches will be uniformly prepared with shot blasting and profiled to receive a full surface overlay.

The entire surface will then be pressure washed and held in a saturated surface dry condition for one hour prior to initiating overlay repairs.

The surface will then be uniformly coated with a thin layer of repair mortar that is scrubbed into the pores of the underlying concrete immediately prior to placing the finish overlay surface.

The first scrub coat can be overlaid with the finish coat immediately or the second coat can be troweled smooth and then a light uniform layer of polymer modified mortar can be sprayed over the top of the freshly placed trowel coat to replicate a broom finish roughness. The entire surface will then be coated with curing compound to retain moisture and to allow the repair mortar set up time before its surface dries.

Pro Features

This option provides a solution that is minimally invasive to the original slab yet provides a uniform surface profile. The polymer modified mortars are specifically manufactured to provide thin overlay finish, but can also be applied to a deep level allowing a single material to comprise the entire surface for both void repairs and thin overlay. SikaTop 122 is recommended for this option since it has a very long track record of excellent performance in this type of application.

Con Features

This restoration approach requires highly skilled restoration contractors to provide a surface that is both uniform in appearance and soundly adhered to the underlying slab. Polymer modified mortars are extremely adherent and working with them is difficult. This is a large repair area so it will require several skilled concrete craftsmen to accomplish a quality installation.

ALTERNATIVES:

1. Select one of the four options recommended by Henkel's engineer to remedy the surface deficiencies and direct Henkel to proceed with the selected option at no cost to the City.
2. Reject each of the options recommended by Henkel's engineer to remedy the surface deficiencies and direct Henkel to remove and replace the entire ice skating ribbon (eg. tubing, rebar,

insulation, imbeds, concrete, etc.) at no cost to the City.

3. Direct staff to share Henkel's engineer's investigation and evaluation report with the City's consultant in order for him to review the report and provide comments regarding the findings of the report as well as a recommendation regarding how to proceed.

CITY MANAGER'S RECOMMENDED ACTION:

The community's vision of the downtown plaza is for it to be an exciting, unique amenity for Ames residents to safely enjoy. The original completion date was June 30, 2023 and today the project remains incomplete. When the issues of the ice ribbon surface first came to the attention of City staff in February 2024, staff immediately informed the General Contractor and have since spent the last approximately six months considering possible remedies brought forward by the General Contractor, which none have been acceptable.

While the project remains incomplete today, Henkel has provided new options to consider for remedying the deficiencies. Therefore, it is the recommendation of the City Manager that the City Council support Alternative #3 and direct staff to share Henkel's engineer's investigation and evaluation report with the City's consultant in order for him to review the report and provide comments regarding the findings of the report as well as a recommendation regarding how to proceed.

ATTACHMENT(S):

[Schainker Plaza Letter to Henkel.docx](#)

[Ames Downtown Plaza Concrete Slab Evaluation.pdf](#)

[Donald Staley CV.pdf](#)

[SikaTop 122.pdf](#)

[Sika Armatec 110.pdf](#)

[Euco Re_Cover.pdf](#)

[Armatec110 Application.pdf](#)

[7-17-2024 - Plaza Schedule.pdf](#)

[2024.08.30 - Ames Downtown Plaza Project Scheudle.pdf](#)