

THE ROBOT REPORT

Next-gen Ingenuity helicopters will have robotic arms

BY BRIANNA WESSLING

NASA is swapping out its Sample Fetch Rover for two drones, similar to the Ingenuity Helicopter, to serve as backups to the Perseverance Rover in the Mars sample return campaign.

The sample return campaign begins with the Perseverance Rover, which has already been on Mars for over a year and, at press time, had sealed 11 samples to eventually send back to Earth. NASA plans to launch its Earth Return Orbiter in fall 2027 and its Sample Retrieval Lander in summer 2028.

The lander is expected to make it to the surface of Mars in 2030. If all goes well, the samples should return to Earth in 2033.

The lander will carry two Ingenuity-like helicopters -- the Mars Ascent Vehicle and the European Space Agency's (ESA's) Sample Transfer Arm. NASA plans for the lander to precisely land on the surface of Mars near Perseverance. The rover will then bring its samples to the lander, which will extract them using its arm.

Originally, NASA planned to send its Sample Fetch Rover as a backup to Perseverance, just in case the rover is



An illustration showing an Ingenuity-like Helicopter, Perseverance Rover, Mars Orbiter, Sample Retrieval Lander and Mars Ascent Vehicle. Source: NASA/JPL

unable to travel to the lander. Instead, NASA opted for two helicopters, each of which will be equipped with mobility wheels on its landing legs and one robotic arm. NASA told The Robot Report the image provided is the only image it has at the moment.

If Perseverance is unable to make it to the lander, the helicopters will fly to the rover, use their robotic arms to retrieve a sample, and fly the samples back to the lander. The helicopters will then place the samples on

the ground near the lander, where the lander will use its own robotic arm to pick up the samples and store them.

Part of the reason NASA decided to go with the helicopters over the Sample Fetch Rover was because of the size of the rover. According to David Parker, director of human and robotic exploration at ESA, the rover wouldn't fit on the lander alongside the Mars Ascent Vehicle, meaning NASA would have to organize a second launch just for the rover.

This process could take four to five days per sample tube, with NASA expecting the helicopters to make round-trip flights of around 700 meters. While NASA isn't ruling out the possibility of using the helicopters for other tasks, like observing the landing area or taking pictures of the ascent vehicle launch, its primary mission is to serve as a backup to Perseverance.

NASA sent its Ingenuity helicopter to Mars with the Perseverance Rover. As the first ever helicopter to be sent to another planet, Ingenuity was sent as a technology demonstration. NASA hoped that the helicopter would complete five flights, and as of July 28 it had completed 29.

Once all of the samples make it back to the lander, the Mars Ascent Vehicle will take off from the surface of Mars. In the two-step launch, the rocket will be tossed into the air before it ignites to ensure the lander doesn't slip to tilt out of place during takeoff.

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Music at the Mission Meets The Great Gatsby

SUBMITTED BY
VICKILYN HUSSEY

Music at the Mission opens the 2022-2023 season of signature "Chamber Music Outside the Box" with high spirits and the return of the popular Mission Masquerade Ball! "We have been working to instill a lifelong love of classical music through classical chamber music concerts, educational programs, and community outreach since 2005," noted Aileen Chanco, General Director and Founder of Music at the Mission. "And your support has made that possible, even during the pandemic when we offered virtual concerts."

Those online concerts became unique and emotional experiences, a good example being the exciting solo violin performance of Bach in Mission San Jose Church that swept listeners away ... and then transformed into an unexpected spinning psychedelic background of improvisatory violin! And, through a partnership with Steinway Pianos in Walnut Creek, Music at the Mission was able to present a performance of the J.S. Bach Concerto for Four Keyboards at the Steinway Gallery featuring Music at the Mission Chamber Players and guest pianists. "The cost of renting and transporting four grand pianos into Mission San Jose church would have been impossible otherwise."

"To say that the past two years have been distressing, with the lives of both the performers on stage and our audience members greatly disrupted, is an understatement. But I believe that music is healing! Even during the toughest of times, music imbues the heart, soul and mind with peace and comfort," Chanco said with a smile.

Yet, with all the video and sound engineering necessary to produce these virtual concerts, there is no comparison to the symbiotic experience of live concerts. Recently, Music at the Mission received a grant from the Niles Rotary to produce one Free Community Outreach Concert this season. The hope is to increase the number of world-class free concerts in the coming years, in order to provide greater access, enrichment, and increase exposure and education to classical music community-wide.

Music at the Mission is hosting the Bootleggers Ball in September with that goal in mind. It is the organization's primary fundraiser and the first live Mission Masquerade Ball benefit event since 2019! Masquerade Ball 2022 entertainment features the Pat Klobas Trio, a snazzy jazz combo performing favorites from the 20s and 30s. Another highlight of the evening will be a short program by Music at the Mission Chamber Players, including a performance accompanying the short film classic "The Champ" by Charlie Chaplin.

The delectable dinner (menu available online) alone is more than enough to keep the party going. But it doesn't stop there! You will have an opportunity to peruse "must haves" from the Silent Auction with a Maitre D'Auction on hand to assist you with Silent Auction bidding. Or sip bubbly from the Champagne Tower and try your luck with the Wine Pull where \$20 buys a cork that wins you a bottle of wine or (if you're lucky) a prize-winning wine to share with your table.

"Each year, the Music at the Mission Board of Directors recognize a business or individual who have supported the arts in the



Rhonda Bradetich, Volunteer of the Year

Tri-City Community, and also honor a volunteer who has been a great help to Music at the Mission," said Chanco. "This year the Board will be honoring Larry and Linda Anderson as Champions of the Arts in our community. Current Board President and Ball Committee Co-Chair, Rhonda Bradetich is being honored as Volunteer of the Year. We are delighted to celebrate these three dedicated individuals!"

An endeavor like the Bootleggers Ball could not take place without the exceptional volunteers of the Ball Committee, especially the Co-Chairs John Schinkel and Rhonda Bradetich who have gone to great lengths to bring you a wonderful Gatsbyesque and Bootlegger's Ball experience! Committee members include Harriet Whitney, Katherine Lee, and Marty Kludjian. David Bonaccorsi will reprise his role as Master of Ceremony.

"We invite everyone in the community to attend in 'Great Gatsby style' or your very own style. The important thing is that you continue to be part of Music at the Mission's success story!"

**Music at the Mission
Bootleggers Ball
Saturday, September 10
6 p.m.
Fremont Elks Lodge
38991 Farwell Dr., Fremont
auctria.events/mambootleggers-
ball
Tickets: \$135 per person
\$1,000 for table of 8**



Larry & Linda Anderson, Tri-City Cultural Arts Champions

Fremont group designing to reflect current lifestyles

SUBMITTED BY
EVELYN LATORRE AND
JANE MUELLER

Housing developments all over California continue to be designed today much as they were in the 1960's: single-family houses created for a nuclear family consisting of two parents and two to four children. However, the way most of us live today doesn't fit the 1960s pattern, as shown by the 2020 Census.

- Fewer than half of households consist of a couple and children.
- Where two-parent households do exist, often both parents work outside the home.
- Single-parent households account for about one in five families.
- People living alone or with a non-family member now make up one out of every three households, a proportion that's likely to grow as Baby Boomers age and as housing prices escalate.

We commute farther in worse traffic, place our kids in school or daycare during the day, and live farther from our families and friends. Commonly, we have little contact with people who live down the street or across the back fence. And when neighbors retire, many sell their real estate in the Bay Area and move out of state or to a senior development.

How can people live together in a neighborhood that not only fits the 21st Century lifestyle, but also preserves the community, mutual support and sense of belonging that characterized earlier eras?

It is a dilemma that a Fremont group of friends organized to confront. The search for that close-knit community feeling led them to a concept called collaborative housing, or "cohousing." The idea is based on a model developed in Denmark in which families combine the autonomy of private dwellings with the advantages of living in community. Kathryn McCamant and Charles Durrett, American architects who introduced the concept to North America in 1988, describe it this way:

"Each household in a cohousing community has a private residence; each one is designed to be self-sufficient and has its own kitchen. But every

household also shares extensive common facilities with the neighborhood, such as a large common house that includes a big kitchen and dining room, children's playrooms, workshops, guest rooms, and laundry facilities. The common facilities, and particularly common dinners, are important aspects of community life for both social and practical reasons."

The Cohousing Association of the United States estimates that there are more than 190 active cohousing communities in 40 U.S. states, 170 of which are completed and the rest of which are in varying stages of formation. The Fremont group, called Mission Peak Village, hopes to break ground soon. Its members purchased a site in the Irvington district last year and are participating actively in the design for their future cohousing-style home. Gunkel Architecture, an experienced designer of cohousing communities, has drawn up a design for 32 condominiums with about 5,000 square feet of shared amenities. The group has retained cohousing pioneer Kathryn McCamant as development consultant.

Mission Peak Village is still accepting new members. They hope that people will sign up for all of the units by the time the approval process is complete.

To celebrate the submittal of their plans to the City, Mission Peak Village will be inviting the public to a free event on the afternoon of September 17 at the Downtown Event Center. Drawings of their proposed community will be unveiled for viewing at the celebration. As details develop, they will be posted on the group's website at www.missionpeakcohousing.org.

This article is part of an ongoing series on Cohousing. Next week: Fremont Delegates to Attend National Cohousing Conference.

Mission Peak Village is a group of friends forming Fremont's first cohousing community. For information, see www.missionpeakcohousing.org or call Kelli at (510) 413-8446. For more information on the topic of cohousing, visit www.cohousing.org.