October 8, 2021

FROM: WE-cycle, Mirte Mallory
TO: RFTA, Dan Blankenship
RE: E-bike and solar-powered e-station insights

Background
In 2020, WE-cycle conducted an e-bike pilot with three e-bikes in the Aspen System and three in the Mid-Valley System. The six e-bikes (2% of the WE-cycle fleet) were enthusiastically welcomed by WE-cyclers with 1,832 trips completed by 414 riders in 87 days. They were ridden three times as frequently as the pedal bikes with the ride time being an average of four minutes shorter. Of the survey respondents, 81% supported an e-bike expansion. The e-bikes had to be recharged in the WE-cycle every three to four days, approximately every 20 – 25 rides, which incurred staff time and resources and removed the e-bikes from service for the duration of the charge cycle.
Note: the City of Aspen and the Town of Basalt contributed funds to purchase these e-bikes as part of the pilot and WE-cycle was able to secure used e-bikes to make this pilot a financial reality.

In 2021, WE-cycle expanded its e-bike pilot to include e-stations. The pilot was intended to continue the electrification of the WE-cycle fleet, as is the industry trend, but to do so aligned with WE-cycle's goal of reducing carbon emissions both in its service offering and in its operations. Since its founding, WE-cycle has been committed to the stations being 100% solar-powered. It is both the environmental and financial best practice. Connecting an e-station to the electrical grid is not only cost prohibitive (estimated at $10,000 - $15,000 depending on location, per WE-cycle discussions with utility providers) but it commits the station to the particular location into the foreseeable future. In an effort to find a solution to charge e-bikes at e-stations with renewable power and to allow for nimble station movement, WE-cycle forged a partnership with Carbondale-based Skyhook Solar and PBSC Urban Solutions Inc. Together, the parties developed the first operational solar-powered e-station in the US. This pioneering technology and infrastructure were deployed in June thereby transforming the Aspen Valley Hospital and the Basalt BRT Upvalley WE-cycle stations into solar-powered e-stations. Additional funding for this pilot was provided by the Aspen Business Center Foundation and CORE. The Town of Basalt and the City of Aspen contributed funds to purchase additional e-bikes, again used, to bring the system-wide total to 26 e-bikes.

This year's pilot has shown very promising results and valuable learnings. It has affirmed that electrification is the future of bikeshare and that e-bikes can be effectively charged in the field with renewable power. The bikeshare industry has been closely following WE-cycle's pilot as there is demand for this product with bikeshare systems adding e-bikes and e-stations to their offering and seeking to do so in an operationally efficient and environmentally responsible manner.

By the numbers
Data reflects rides between June 9 – October 4, 2021.

2021 WE-cycle fleet:
- 230 pedal bikes, 90% of fleet
- 26 e-bikes,10% of fleet

Total WE-cycle rides: 45,749
- 30,958 pedal trips, 68% of trips
- 14,791 e-bike trips, 32% of trips

Average ride time
- Pedal bikes, 10.41 minutes
- E-bikes, 9.43 minutes

E-bikes help go the distance:
301 trips have been made between Basalt and Willits/El Jebel, 50% of which were on e-bikes:
- Basalt → El Jebel / Willits = 164 trips (81 e-bike)
- El Jebel / Willits → Basalt = 137 trips (68 e-bike). By contrast, in 2018, without e-bikes, there were only 74 trips.

An easier ride up:
- In the Aspen System, 37% of e-bike rides end at a more uphill station than where they began.

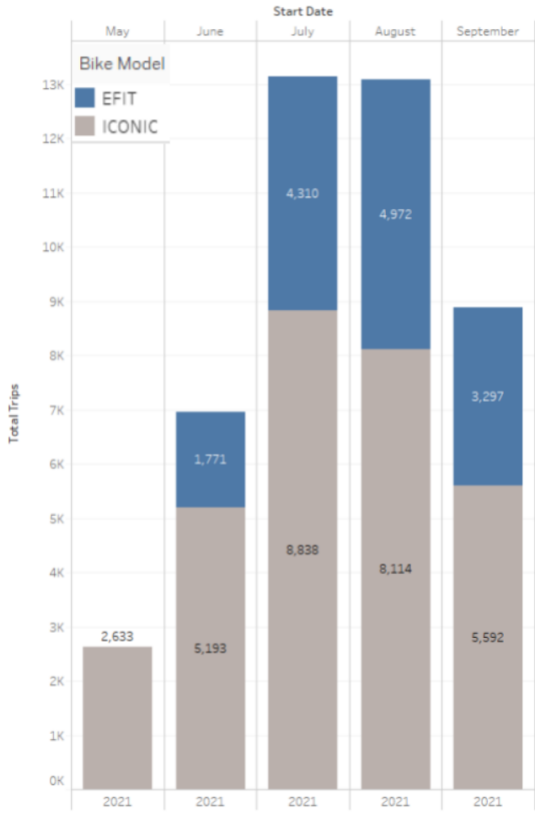

Figure 1: Pedal bikes (gray/Iconic) vs e-bike (blue/EFIT) rides per month. Note, e-bikes were not deployed until June 9, 2021.