Acoustic Monitoring
For
WOFH Tendons

Board of Directors Project Oversight Committee
May 1, 2019 • Honolulu, Hawai‘i
Purpose for Monitoring Tendons

- Tendon strand failures were experienced at Spans 249 and 258
- Known tendon issues were addressed by Kiewit
- Monitoring system will be used to detect any future wire fractures so that they can be addressed properly
What is Acoustic Monitoring?

• Acoustic sensors detect the sound of any wire breaks that may occur

• Wire breaks are short duration/high frequency

• Breaks can be detected over trains which are low frequency.
The Acoustic Monitoring System

• Sensors will be linked with fiber optic cables
• Kiewit will monitor
  - 61 WOFH span-by-span structures that are most likely to experience tendon issues
    - All balanced cantilever spans
• Monitoring period will be 20 years.
Current Status

Kiewit is interfacing with Hitachi & Engineers of Record (EORs) regarding:

- Power requirements
- Cable supports
- Space requirement in the structures and at stations
Anticipated Schedule

May – July 2019

- Resolve interfaces
- Get power into the box girders at UH West Oahu, West Loch, and Pearl Highlands Stations
- Fabricate sensors.

August 2019

- Begin system installation. Duration 3-6 months.
Questions?
Mahalo!