Dark Fiber Presentation to District CBOs

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Key narrative points:

- The SCCOE is the ISP for most districts in the County. However, each district is responsible for their connection to our data center.
    - **Current hub and spoke example diagram shown with direct connections to each school district.**
        - When something goes down, the district is typically responsible for getting them reconnected. This doesn't work well. Districts buy bandwidth from providers like Comcast, ATT, and others. Often their connections are single points of failure, as we've seen happen multiple times over the past year when a single fiber gets cut due to construction or fire. The situation is exacerbated because many districts are usually affected, not just one because most of them share the same fiber optic connection.
        - In this day and age, schools are very reliant on internet connectivity, and their educational programs tend to be highly impacted when it goes down.
        - Also buying bandwidth in this way is probably one of the least economical methods of connecting to the internet.
    - **Future connectivity example diagram shown with ring configuration.**
        - On the other hand, here's the benefit of our future connectivity. Schools/districts can be placed in a ring configuration. Should a break occur, their service is uninterrupted <u>because</u> of the fiber loop. As you can see in this configuration, should a single cut occur on the ring, internet traffic can be instantaneously routed back in the opposite direction.
        - We (SCCOE) acquire direct access to the fiber, allowing us to put our own equipment in place. This allows us the flexibility to upgrade our connections as needed, using the most cost-effective solutions.
        - In this new configuration, the SCCOE leads the management and administration of the rings creating an interdependency between SCCOE and the districts.
    - **Satellite view of geographic ring configurations shown with a Google Earth representation of the network on following slides:**
        - RING 1: Cupertino, Los Gatos-Saratoga districts, Cambrian and Union areas
        - RING 2: San Jose Unified, Campbell Union and High School, Oak Grove, Luther Burbank Districts, and Metro Ed
        - RING 3: East Side, Mt. Pleasant, Franklin McKinley, Alum Rock and Berryessa areas
        - RING 4: Palo Alto, Mountain View Whisman, Milpitas, and Orchard
        - RING 5: Sunnyvale, Santa Clara, and Moreland
        - ALL RINGS: showing above rings layered together

Santa Clara County Office of Education

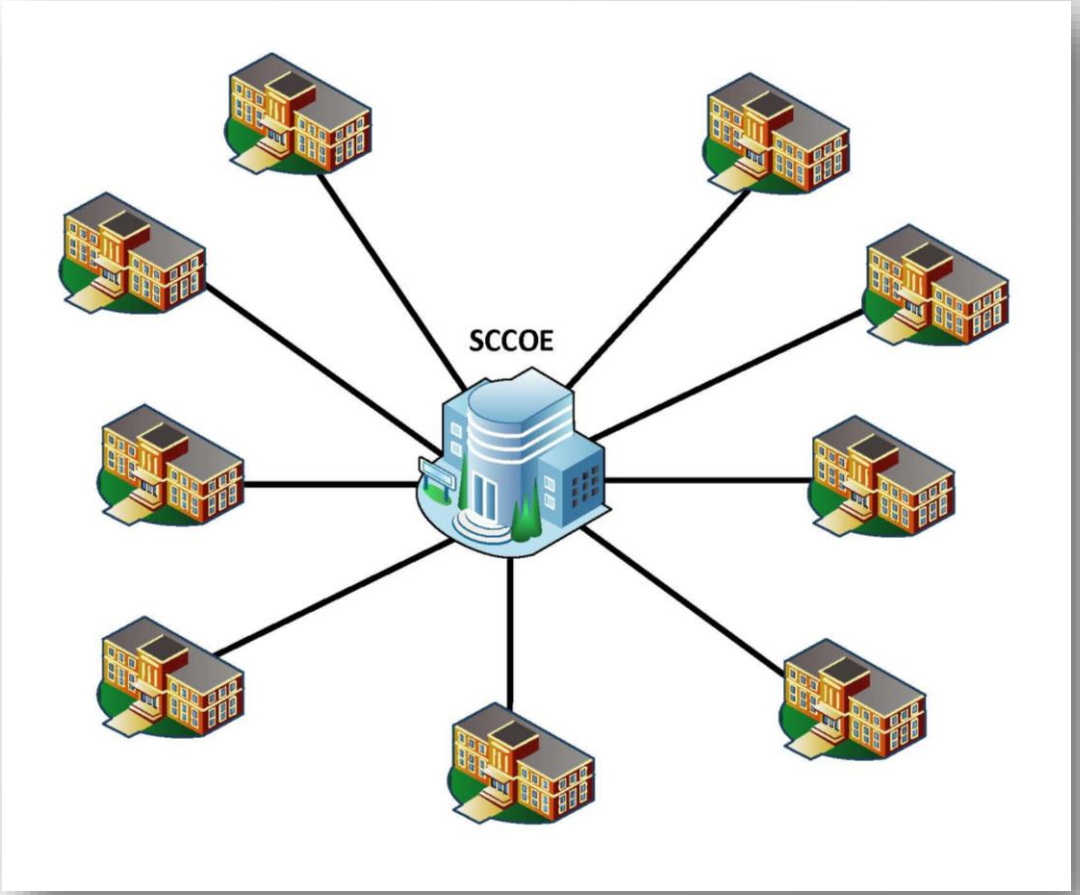
Technology Services | Dark Fiber

Presented to District CBOs

Dark Fiber | Current Connectivity

Example

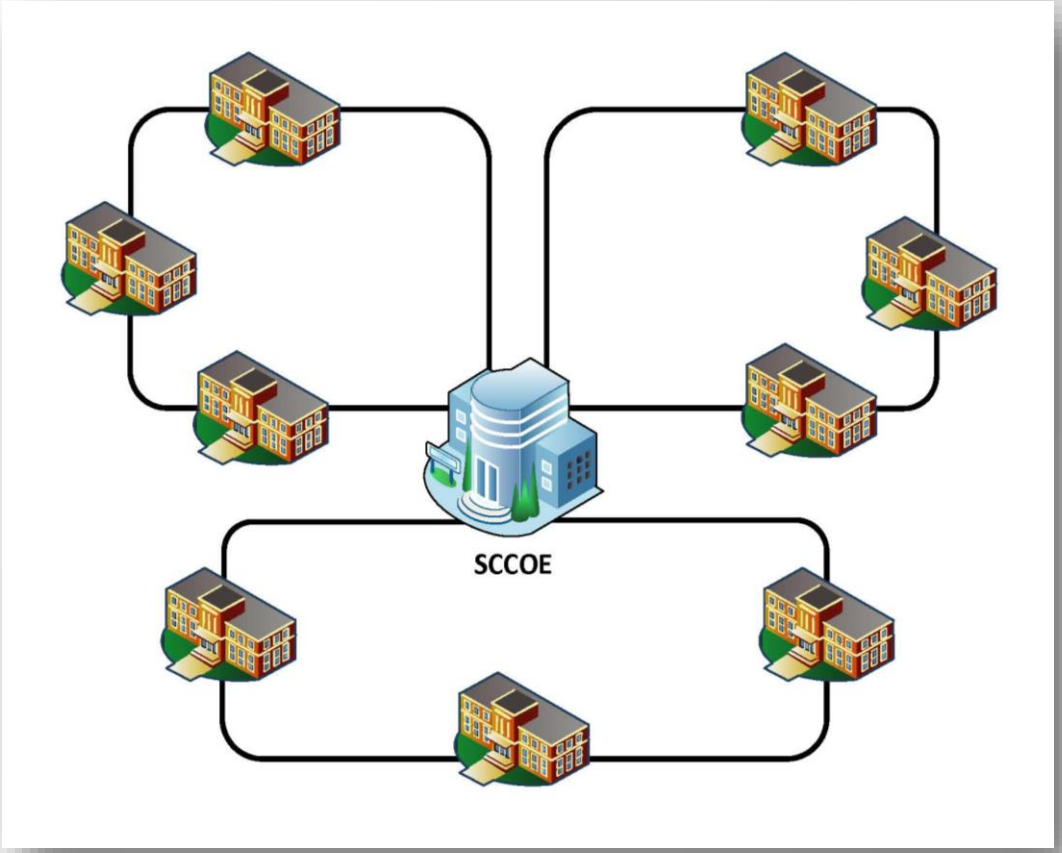
Districts connected via hub and spoke



Dark Fiber | Future Connectivity

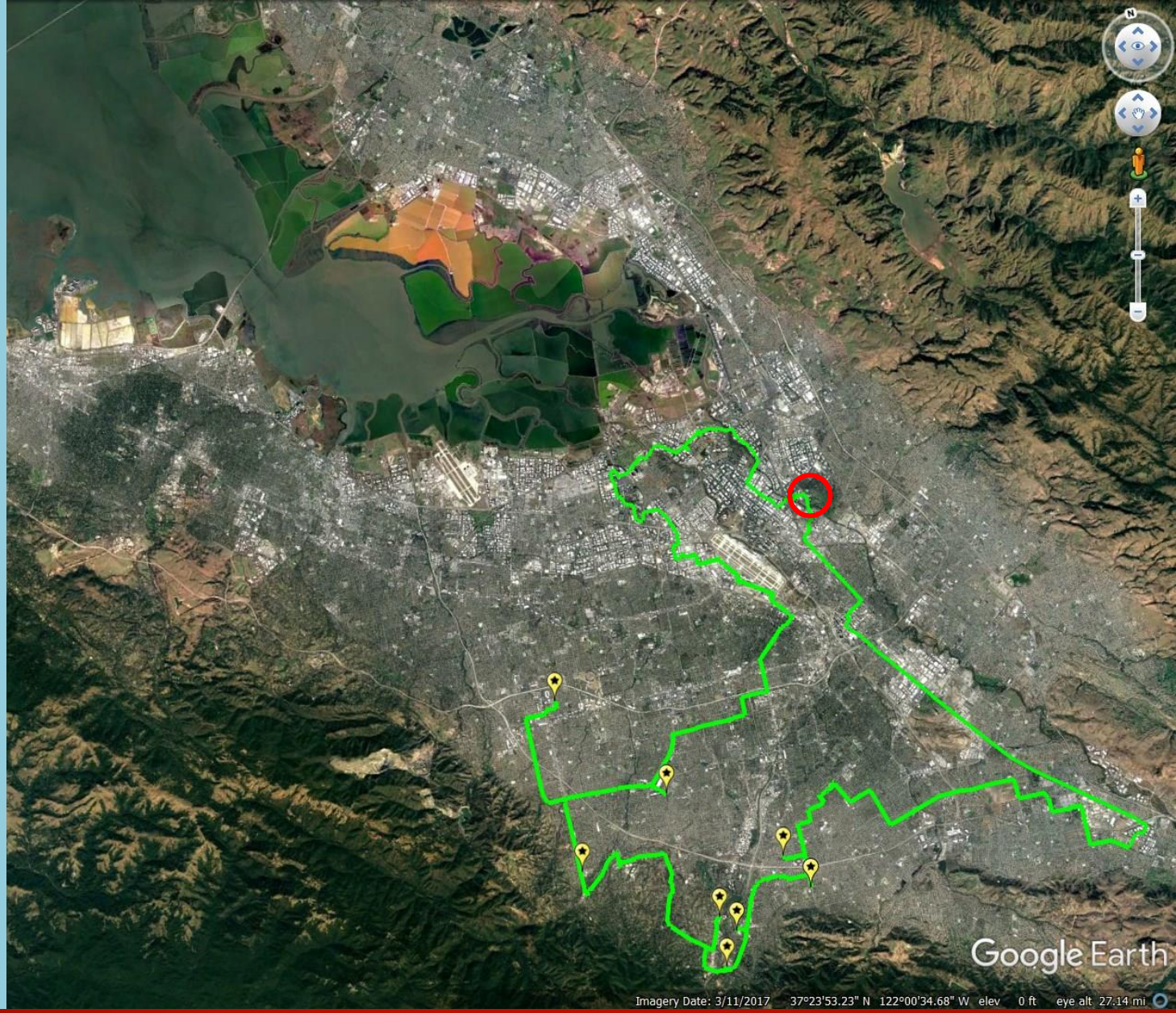
Example

Districts connected via rings



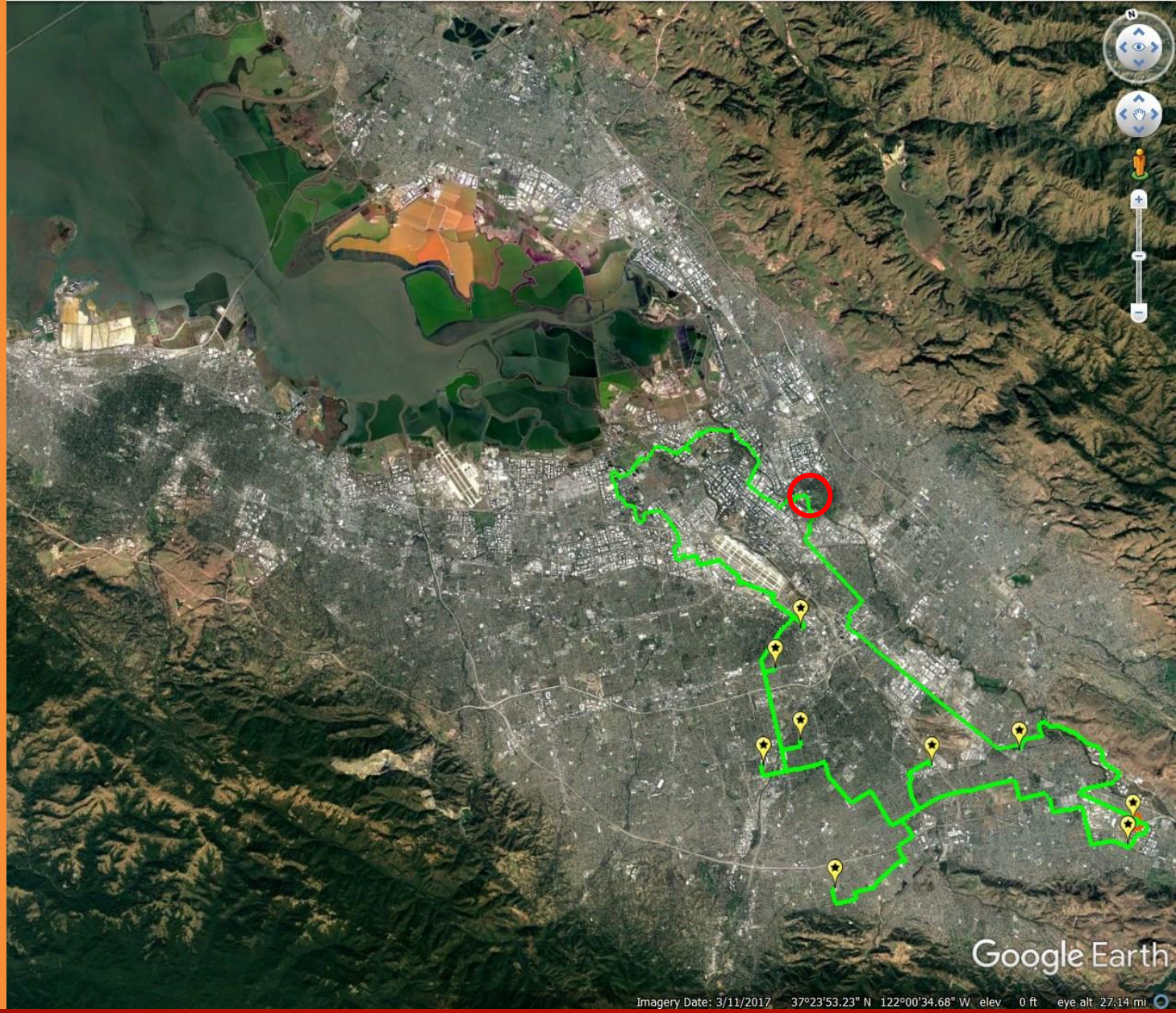
Dark Fiber Coverage

RING 1



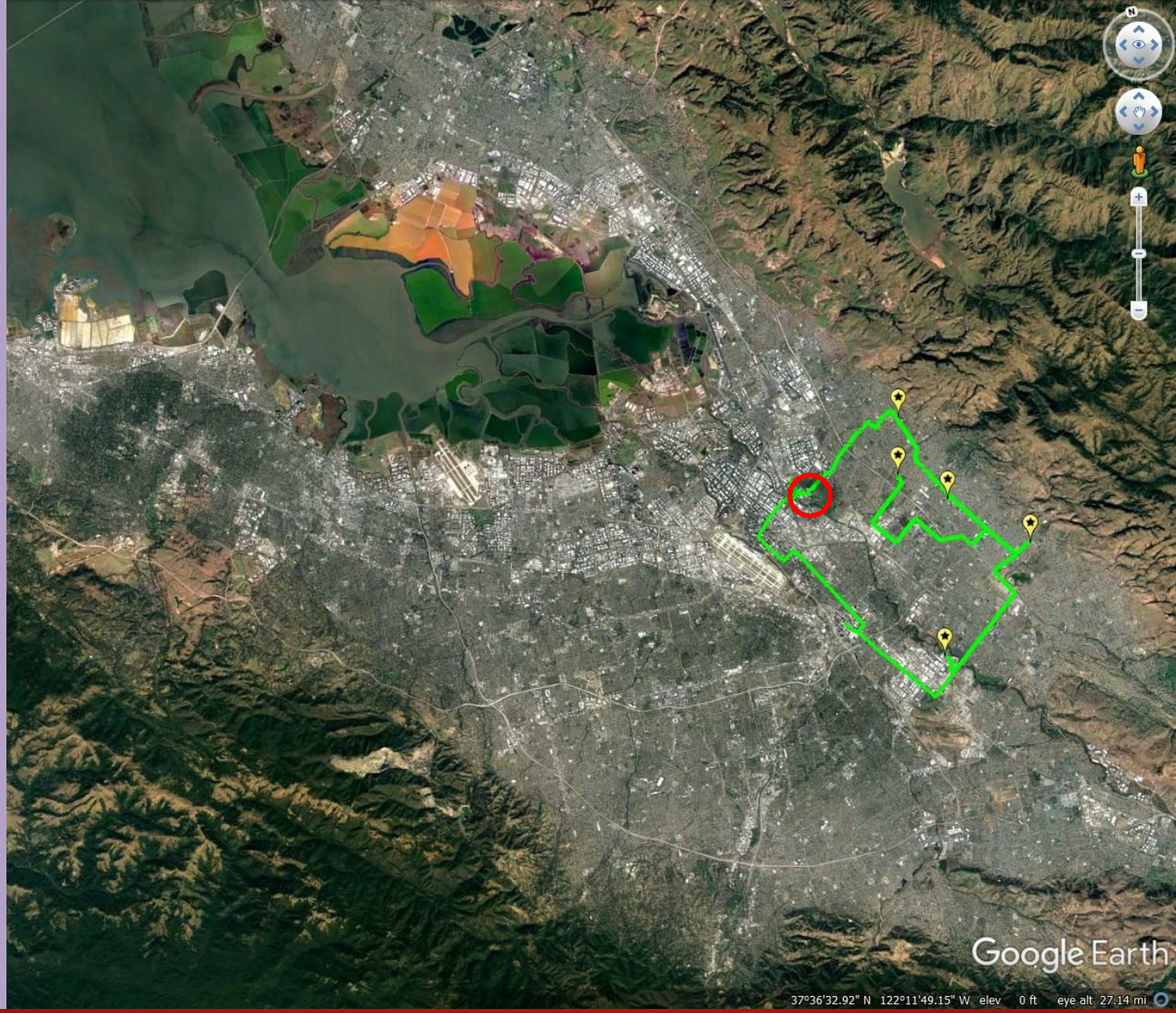
Dark Fiber Coverage

RING 2



Dark Fiber Coverage

RING 3

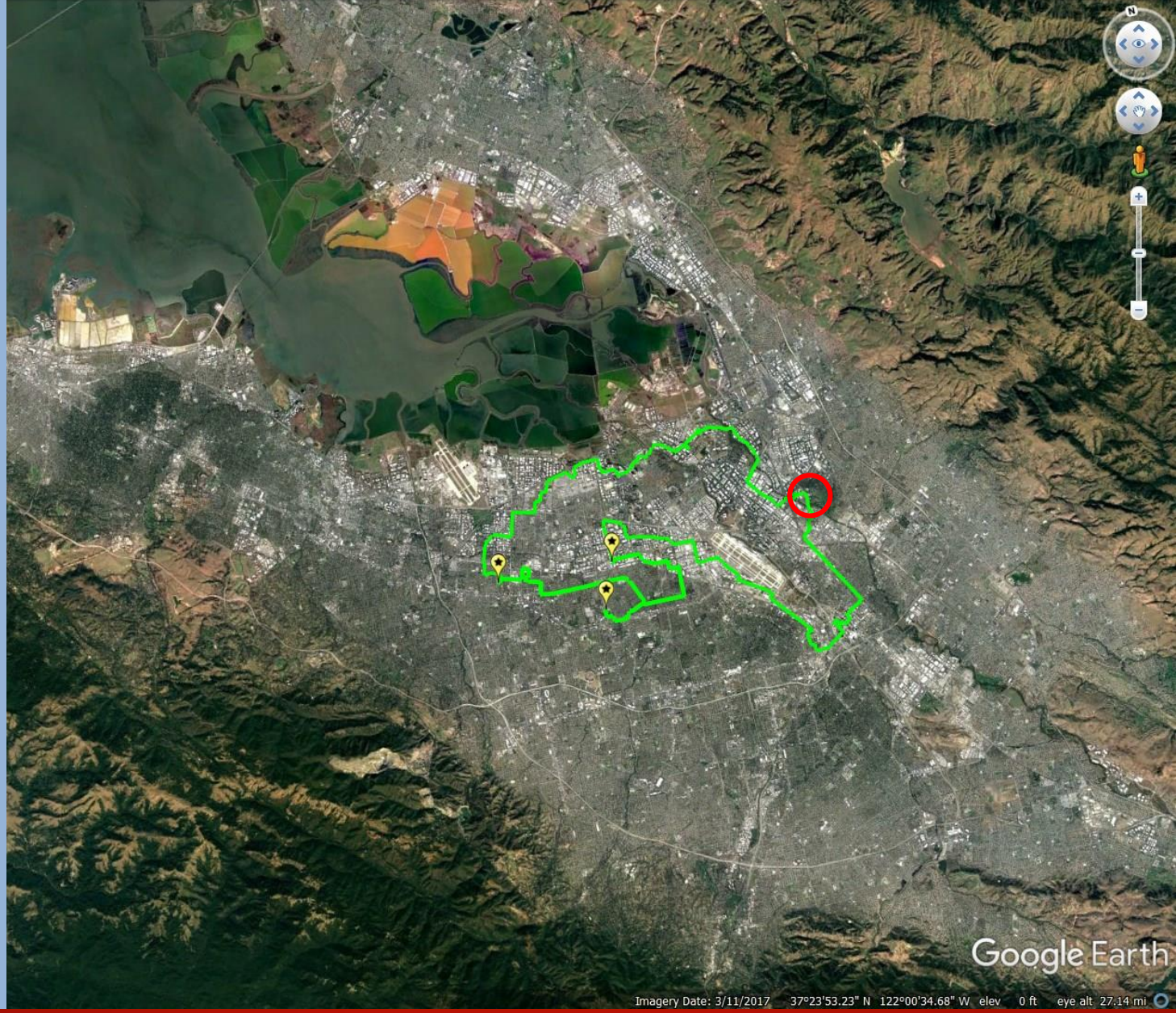


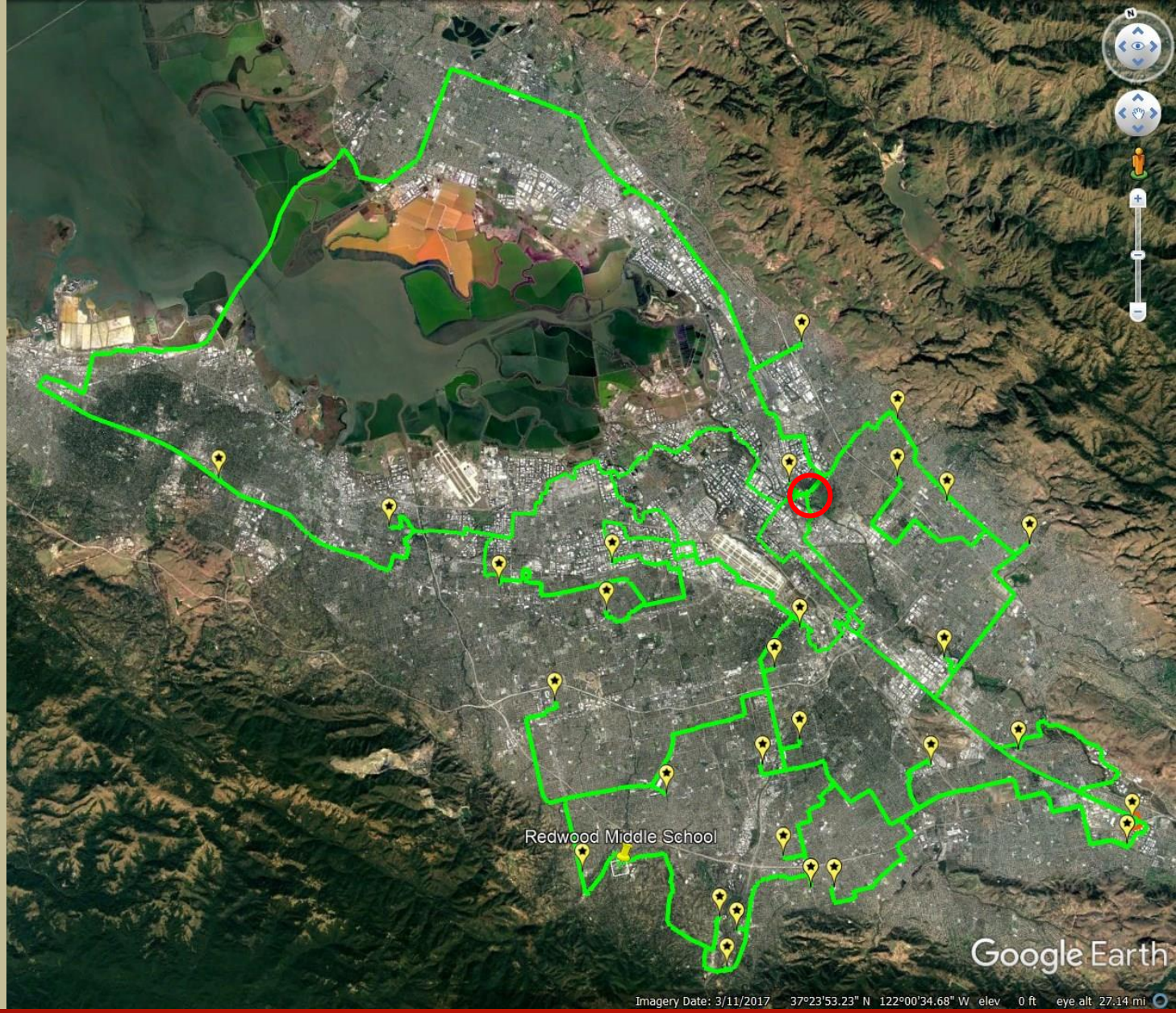
Dark Fiber Coverage

RING 4

Dark Fiber Coverage

RING 5



Dark Fiber Coverage

RING (All)