



Alaska Department of Transportation & Public Facilities Drone Inspections of High Mast Towers

Jesse Escamilla III, P.E., S.E.

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Keep Alaska Moving through service and infrastructure

What is a High Mast Tower?

Overview



What is a High Mast Tower?

Overview - Foundations/Bases/Hatch



What is a High Mast Tower?

Overview - “Telescoped” Seams



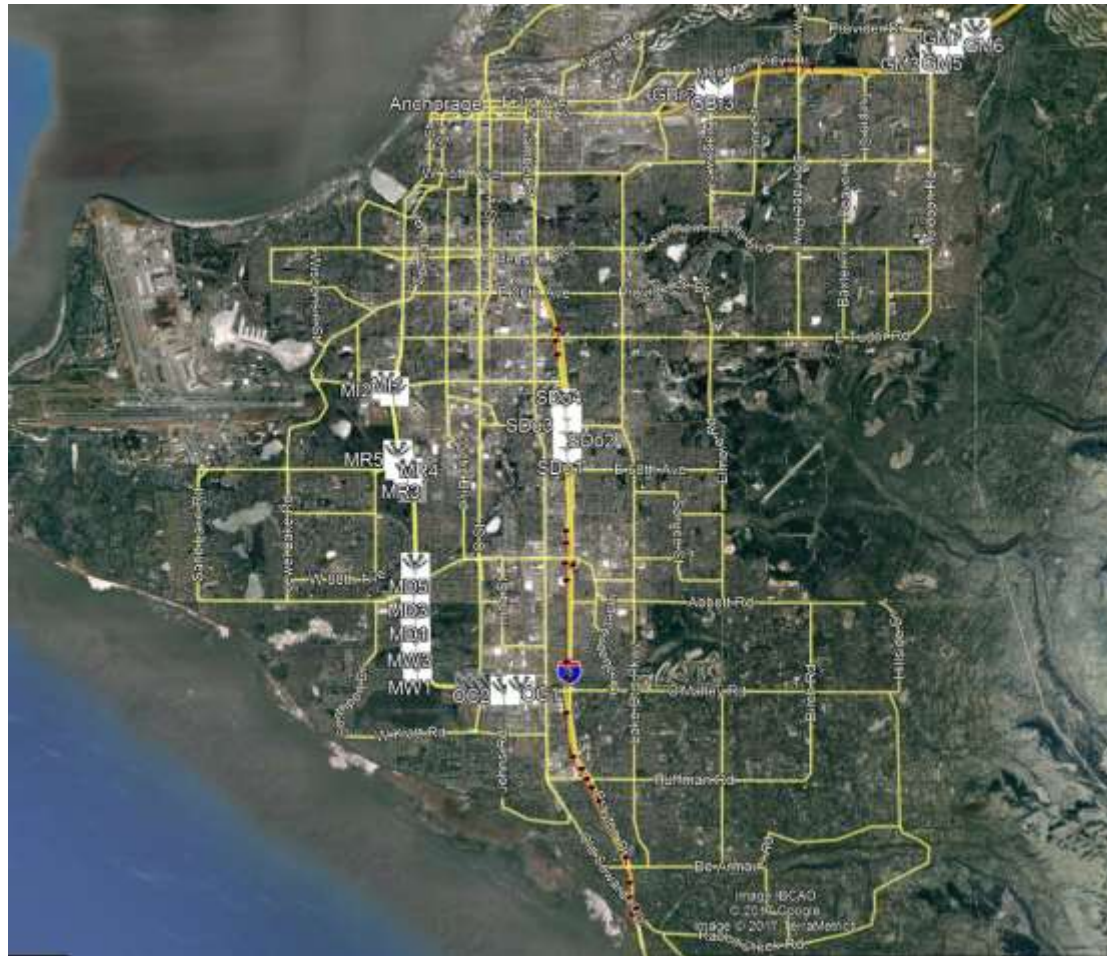
What is a High Mast Tower?

Overview - Chandelier



Tower Locations

125 Towers Total – Anchorage Area



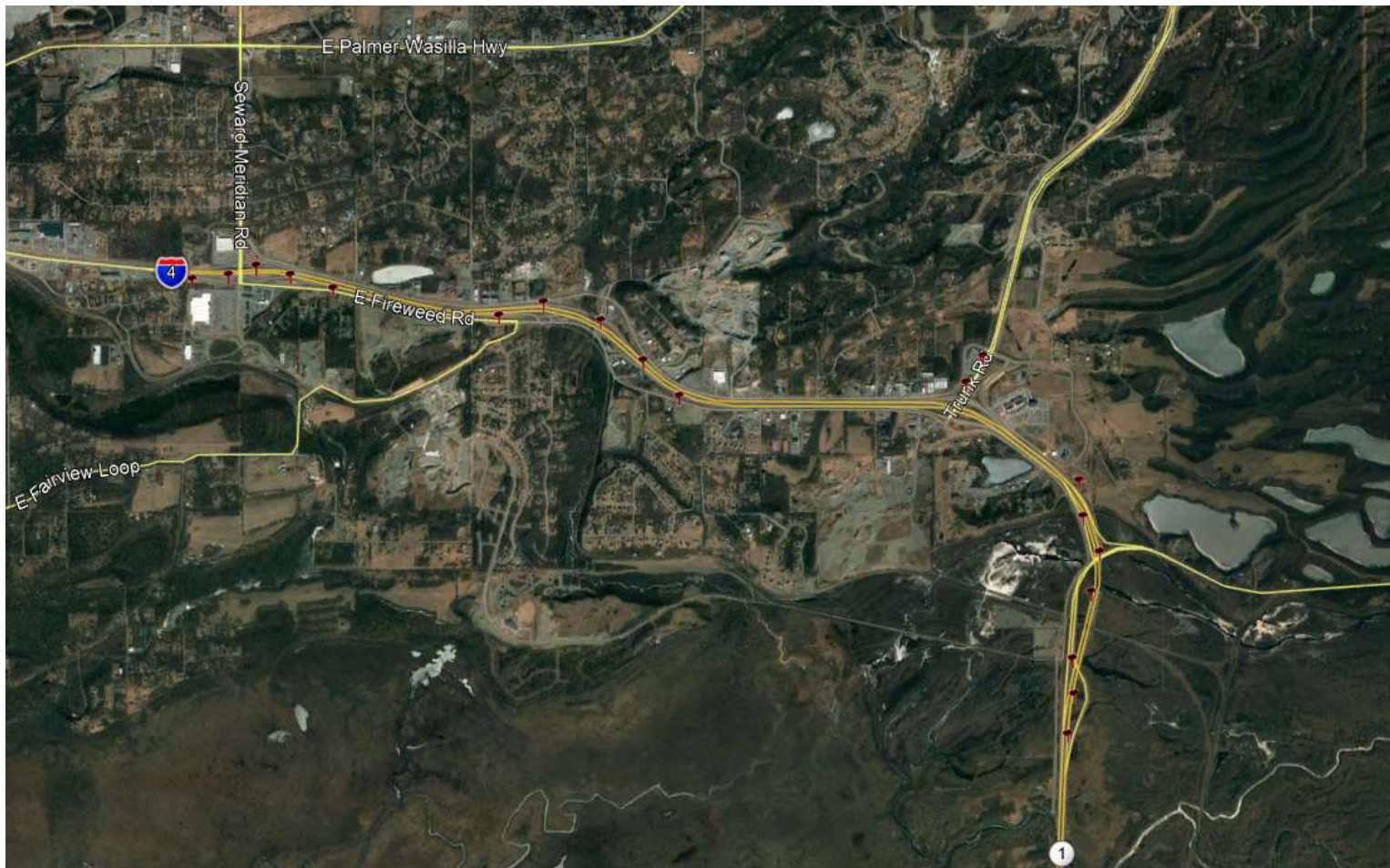
Tower Locations

125 Towers Total – Glenn Highway



Tower Locations

125 Towers Total – Wasilla



Tower Locations

125 Towers Total – North Pole



Why Inspect?

Iowa Collapse - Example





Why Inspect?

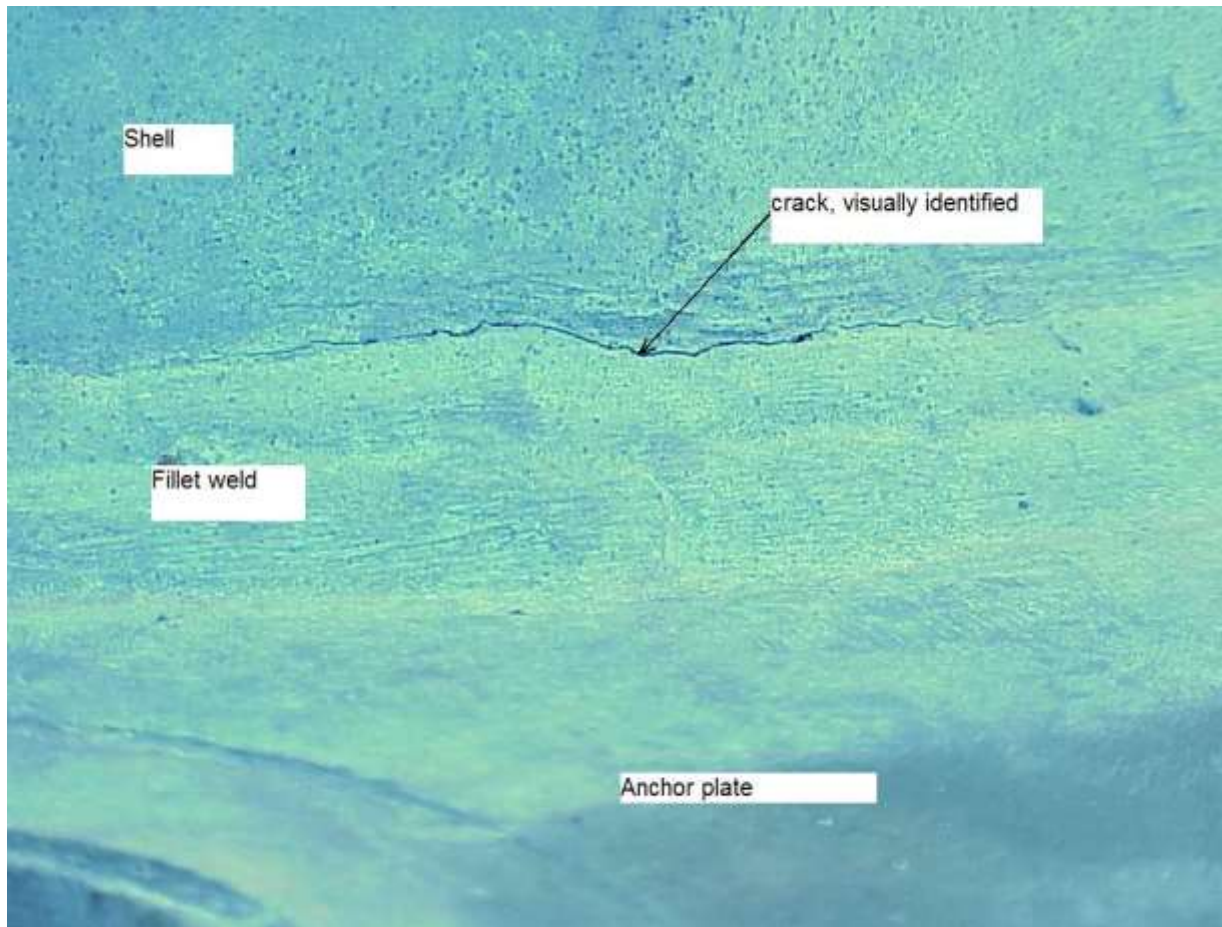
Iowa Collapse - Example



Pole Base 1-A, Cracks at
corners
11-13-03

Why Inspect?

Iowa Collapse - Example



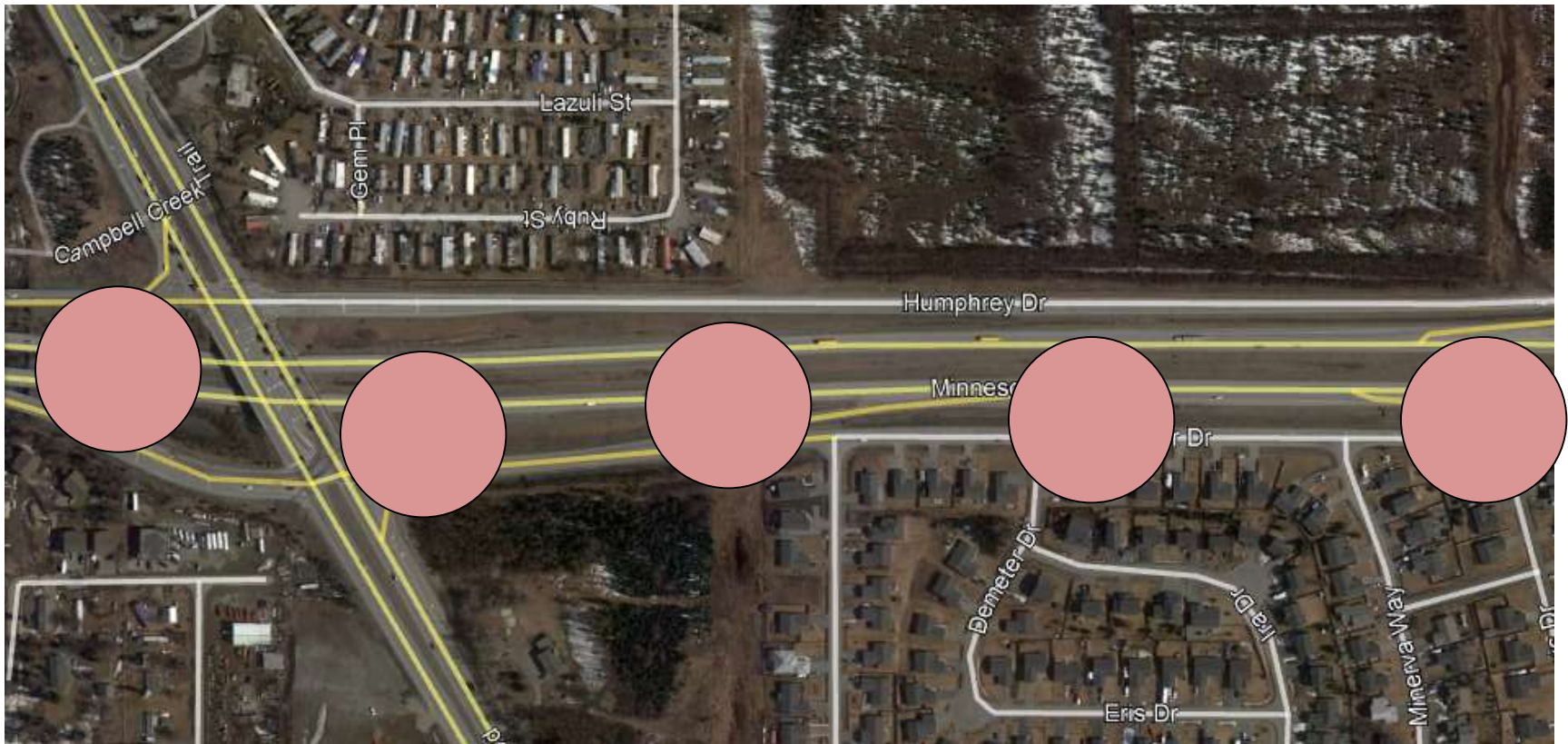
Why Inspect?

Iowa Collapse - Example



Why Inspect?

Minnesota & Diamond Interchange



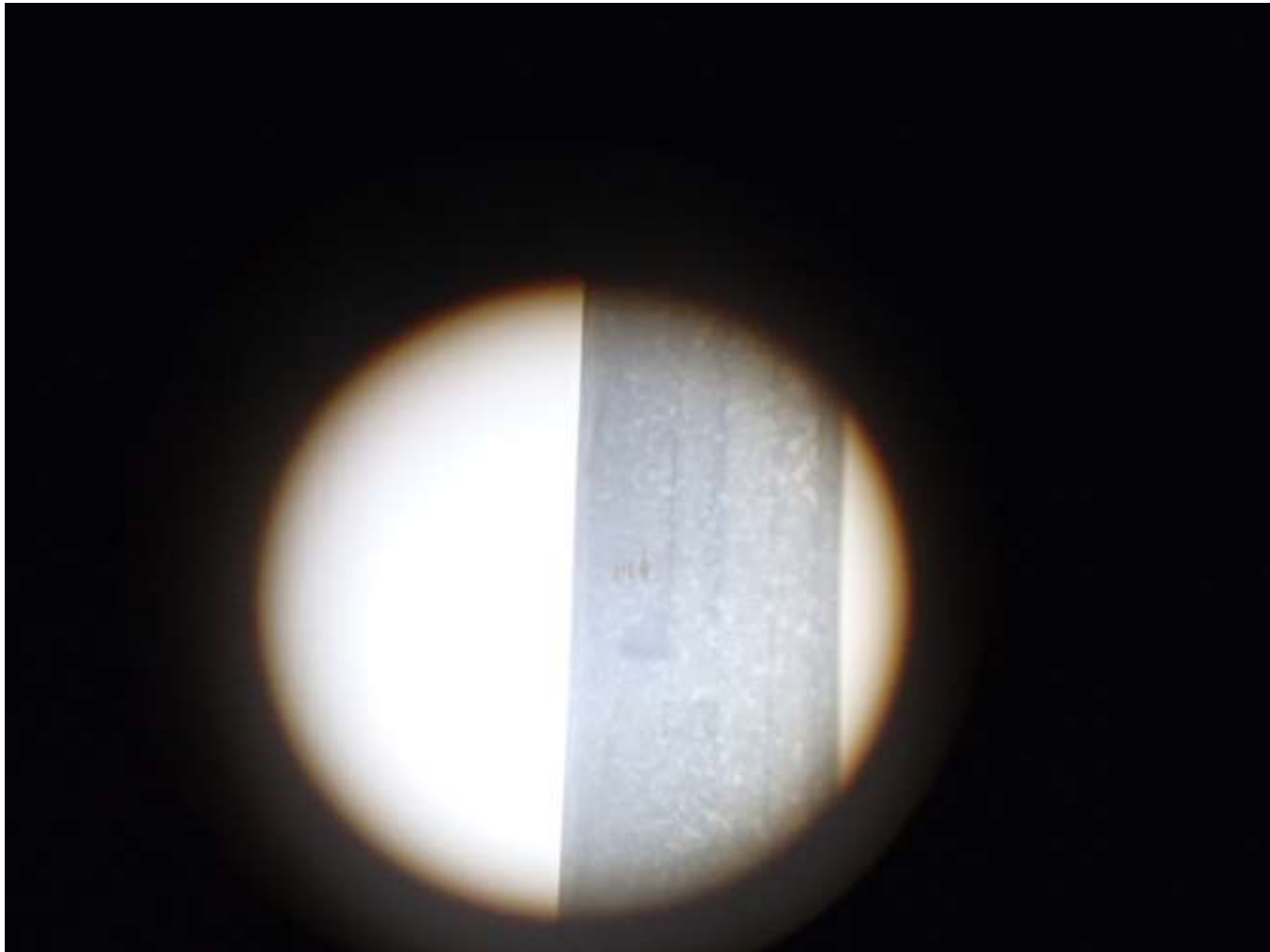
Inspection Plan

- Visual Inspection of Base
- Hand Torqueing Nuts
- Visual Inspection of Poles





Inspection Plan





Drone Inspection History

- **2014 – Test drone images bridge inspection**
- **2016 – Trial drone contract for mast towers**
 - **Six towers tested**
 - **Varied wide angle and normal lenses**
 - **Varied Video and still images**
- **2017 – Contract of 31 towers for drone**



New Inspection Plan

- **Visual Inspection of Poles and Bases**
- **Hand Torqueing Nuts**
- **Visual Inspection of Bases**
- **Hand Torqueing Nuts**
- **Visual Inspection of Poles***

***At predetermined locations**



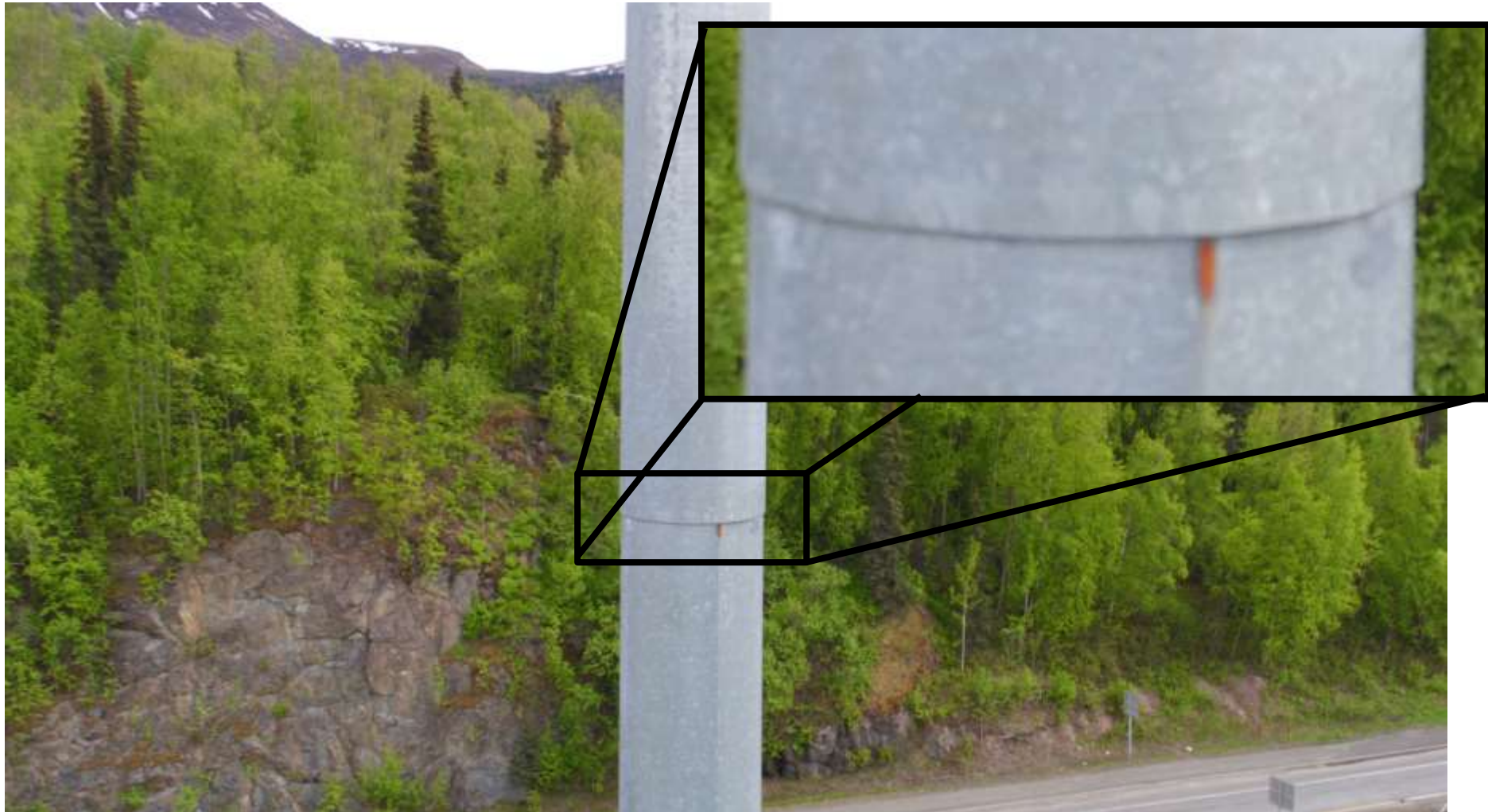
Drone Inspection Plan

- **Photograph 1st quadrant with hatch**
- **Proceed up tower w/overlapping photos**
- **Detail specific irregularities**
- **Proceed clockwise to next quadrant**
- **Repeat until all quadrants are completed**

Drone Inspection Example



Drone Inspection Example





Conclusions

- **Better visual than previous inspections**
- **Ability to predetermine in-depth areas**
- **Ability to document inspections**
- **Ability to repeat inspection**
- **Full inventory within 4 years**

Questions?

