

Lafayette Gas Safety WROF

Risk Management

Lafayette Gas Safety Alliance Meeting

July 9, 2019



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Pipeline Safety Risk Management in Lafayette - Agenda

- Lafayette Transmission pipeline prior data clarifications
- Review of Lafayette Weather Related and Outside Force (WROF) sub-threats
- Programs/projects targeted at WROF risk reduction



Lafayette Transmission Pipeline Miles

➤ HCA Miles in Lafayette has increased since 2017

- **2017:** reported approximately 2.5 miles of HCA
- **Sept. 10, 2018** – Map showed full HCA data set and is correct
- **May 28, 2019** – Reported approximately 2.9 miles of HCA.
 - Miles are correct. The data layer supporting HCA for map was being updated and some HCA was errantly not shown in the new map creation.

➤ Transmission Miles in Lafayette Unchanged from prior reporting

- **August 2017:** Approximately 11 miles reported
- **May 2019:** Approximately 10.9 miles reported
 - Differences due to use of different city polygons between timeframes and small amounts of pipe removed/retired/modified between snapshots

➤ Explanation of Prior % Design Reporting

- **August 2017 versus May 2019:** DFM 3001-01 reported as 32%
 - Correct when including longitudinal joint safety factor
 - May 28 meeting slides used % SMYS, without inclusion of the longitudinal joint factor



% Design Stress Versus % SMYS – Affect on Pipeline Assets Summary

➤ Affect on Lafayette Transmission Pipeline Assets Summary

- Maximum Allowable Operating Pressure (MAOP) Range: Still 60 psig to 338 psig

| Diameter (inch) | % SMYS (Miles) | | | | Total |
|-----------------|----------------|----------------|----------------|----------------|-------------|
| | > 0% to < 10% | ≥ 10% to < 15% | ≥ 15% to < 20% | ≥ 20% to < 23% | |
| 3.500 | <0.01 | 0.02 | 0.00 | 0.00 | 0.02 |
| 4.500 | 0.14 | 0.00 | 0.71 | 0.00 | 0.85 |
| 6.625 | 1.63 | <0.01 | 0.00 | 0.00 | 1.63 |
| 8.625 | 0.28 | 1.79 | 0.26 | 0.00 | 2.33 |
| 10.750 | 0.00 | 1.65 | <0.01 | 0.00 | 1.65 |
| 12.750 | <0.01 | 3.41 | 0.40 | <0.01 | 3.81 |
| 16.000 | 0.00 | 0.00 | <0.01 | 0.63 | 0.63 |
| Totals: | 2.05 | 6.86 | 1.37 | 0.63 | 10.9 |

Data for May 28th meeting based on %SMYS (pipe steel strength property)

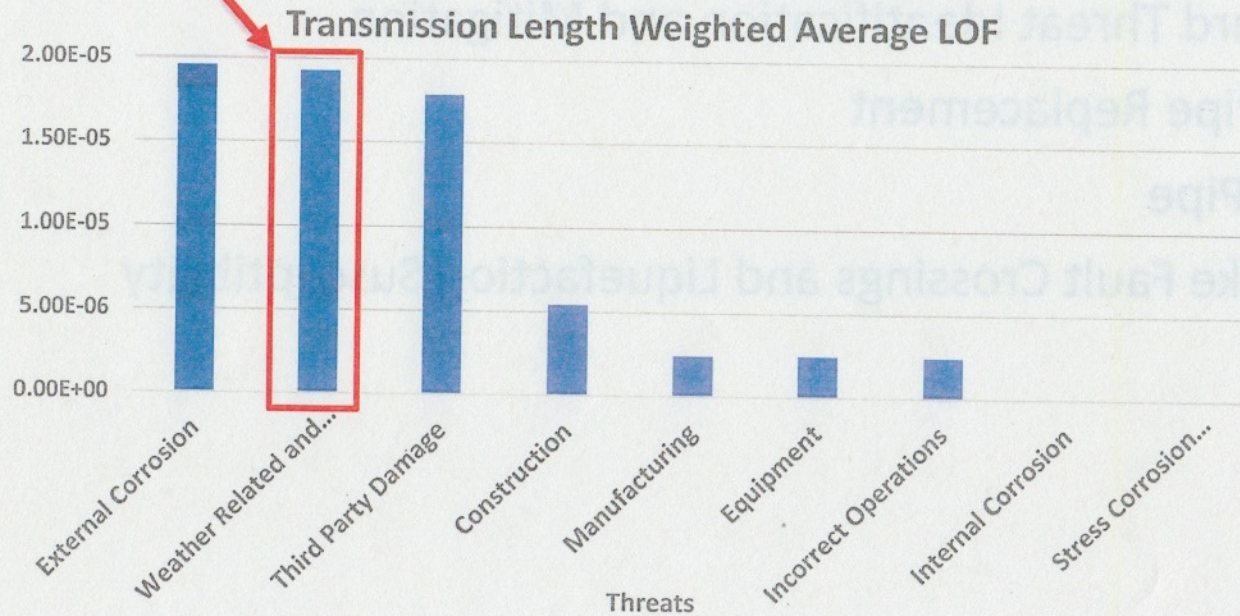
| Diameter (inch) | % Design Stress (Miles) | | | | | Total |
|-----------------|-------------------------|----------------|----------------|----------------|----------------|-------------|
| | > 0% to < 10% | ≥ 10% to < 15% | ≥ 15% to < 20% | ≥ 20% to < 25% | ≥ 25% to < 32% | |
| 3.500 | <0.01 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 |
| 4.500 | 0.09 | 0.00 | 0.05 | 0.00 | 0.71 | 0.85 |
| 6.625 | 0.37 | 1.28 | 0.00 | 0.00 | 0.00 | 1.65 |
| 8.625 | 0.20 | 1.40 | 0.73 | 0.00 | 0.00 | 2.33 |
| 10.750 | 0.00 | 1.65 | 0.00 | <0.01 | 0.00 | 1.65 |
| 12.750 | <0.01 | 3.41 | 0.40 | <0.01 | 0.00 | 3.81 |
| 16.000 | 0.00 | 0.00 | <0.01 | 0.63 | 0.00 | 0.63 |
| Totals: | 0.66 | 7.74 | 1.19 | 0.65 | 0.71 | 10.9 |

Data for 2017 data response based on % Design Stress including both SMYS and Longitudinal Joint Factor

Lafayette WROF Risk Drivers

➤ Of the 14 WROF sub-threats, the WROF LOF in Lafayette predominantly driven by heavy rain/flood, slope instability and erosion with additional contributions from subsidence, liquefaction, vegetation*, and vehicles.

Sign. incidents per mile per year.



many PHMSA incidents.

* Note that trees are a threat that interacts with these WROF threats and also external corrosion, manufacturing and construction threats and limits the ability to access pipe in an emergency or for performing critical maintenance work and patrols.



Control and Mitigation Programs that Improve WROF Risk

➤ Operations and Maintenance

- Patrols
- Leak Survey

➤ Geo-Hazard Threat Identification and Mitigation

➤ Vintage Pipe Replacement

➤ Exposed Pipe

➤ Earthquake Fault Crossings and Liquefaction Susceptibility



➤ Patrols

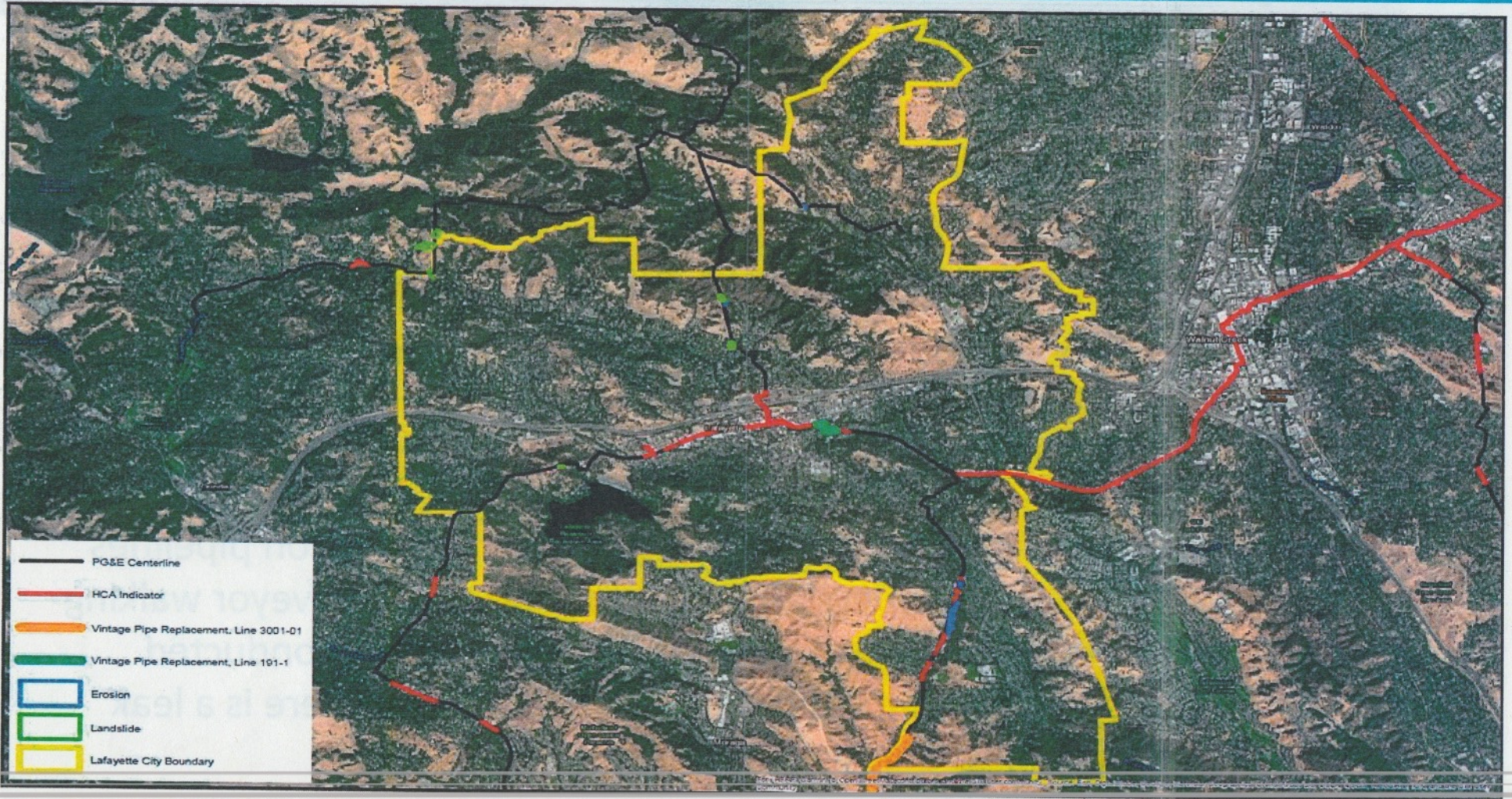
- PG&E patrols its gas transmission pipelines at least quarterly (and often monthly) to look for indications of construction activity and other factors affecting pipeline safety and operation.
- **The lines throughout Lafayette were patrolled in June 2019, and there were no reported observations.**

➤ Leak Survey

- PG&E conducts leak surveys of its natural gas transmission pipelines semi-annually. Leak surveys are conducted by a leak surveyor walking above the pipeline with leak detection instruments or conducted aurally and followed-up with a ground leak survey if there is a leak indication identified during the aerial survey.
- **The lines throughout Lafayette were leak surveyed in May 2019, and no leaks were found.**



WROF – Geo-Hazard Threat Identification / Mitigation and Vintage Pipe Replacement



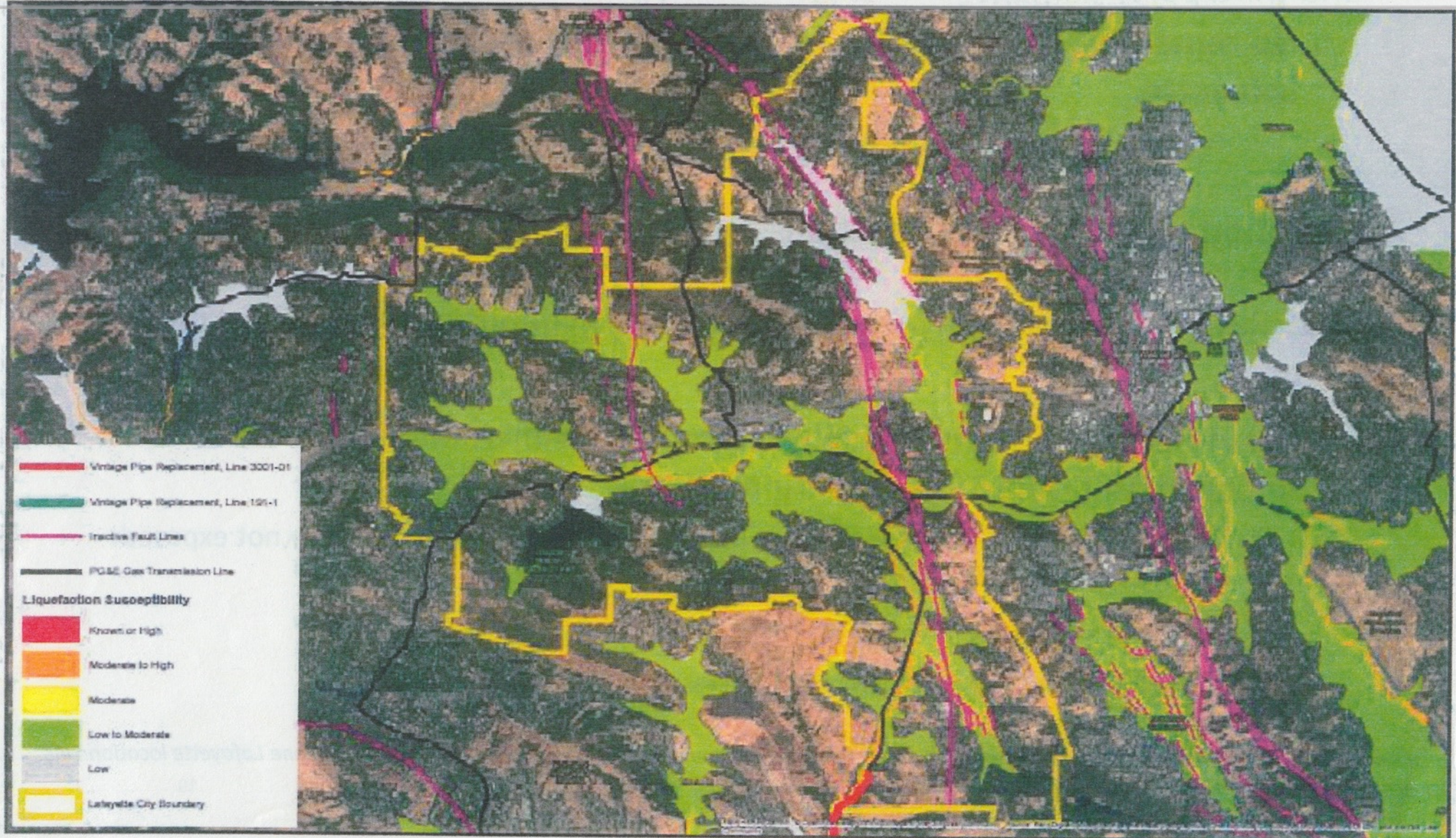
Planned Transmission Vintage Pipe Replacement Projects in Lafayette (as of June 2019)

| Line | Approximate Location of Pipeline Project | Footage of Pipeline | Planned Date of Execution | Related Programs |
|----------------|---|---------------------|---------------------------|--------------------------|
| L-191-1 | Near Intersection of Moraga Boulevard and 3rd Street | Replace ~1,100 feet | 2020 | Vintage Pipe Replacement |
| DFM 3001-01 | St. Marys Road between South Lucille Lane and Rohrer Drive and 2nd Street and Golden Gate Way | Replace ~450 feet | 2019 | Capacity & Vintage Pipe |



WROF – Earthquake Fault Crossing / Liquefaction

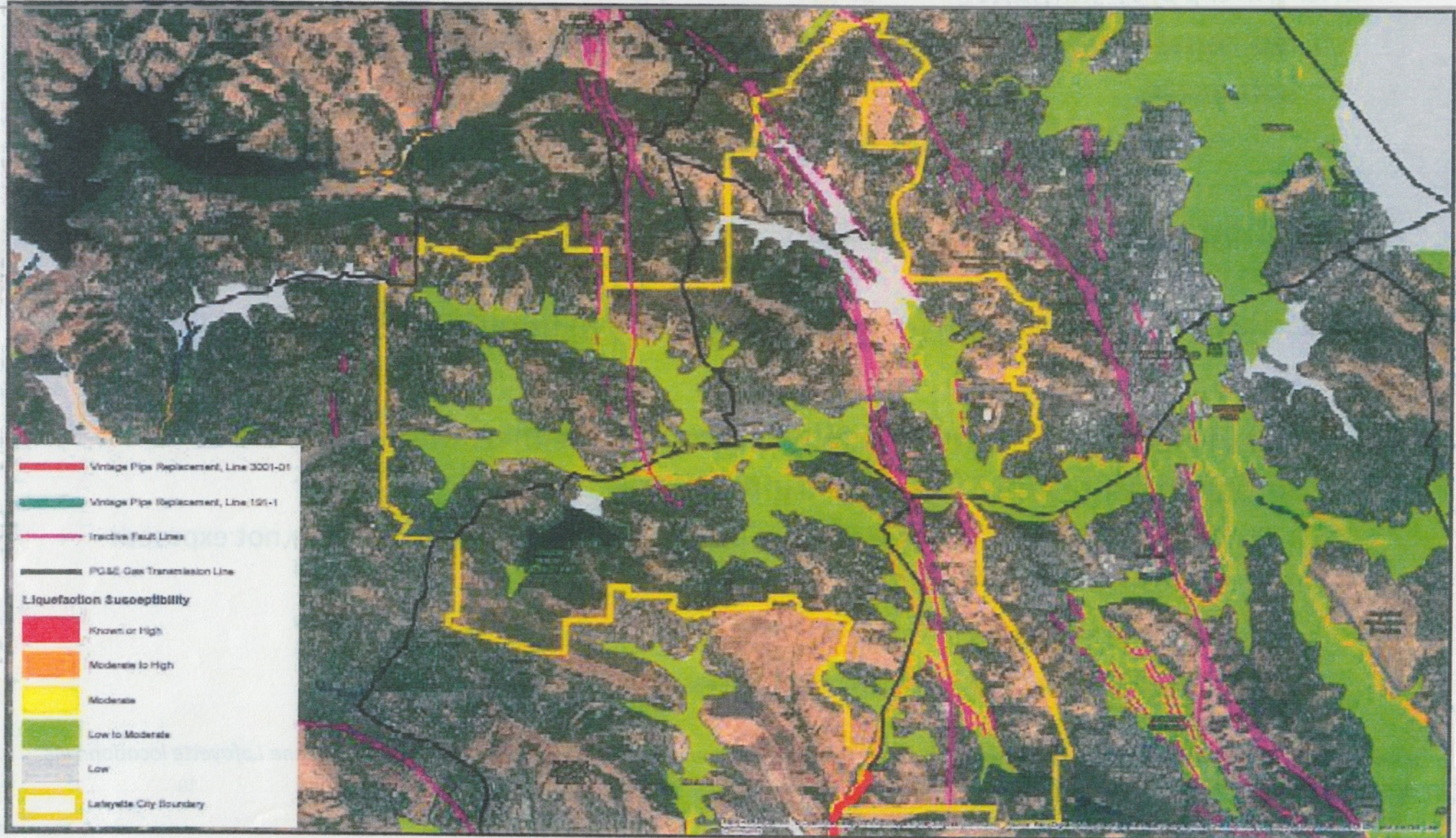
- Strains due to active earthquake faults / liquefaction susceptibility evaluated annually.
- **No active earth quake fault crossings in Lafayette**





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WROF – Exposed Pipe

- Program addresses the threats of both the time independent threats of WROF and third party damage.
 - **No remaining exposed pipe on PG&E’s transmission pipelines in Lafayette.**
 - Designed spans are maintained through the Atmospheric corrosion control program.
- Mitigation priority given to locations that have a high LOF and are in HCAs
- GT&S Rate Case, OSA data response (July, 2018) identified 14 exposed pipe locations.
 - Response provided potentially exposed transmission pipe for both incorporated Lafayette and Briones Park.
 - 10 potential exposed pipe locations in Briones Park are either currently not exposed (8) or are designed spans (2*).
 - 2* designed spans in Lafayette
 - 2 exposed pipe locations in Lafayette repaired/verified not exposed

** One Briones park location was previously identified as a designed span and has been replaced and lowered, and one Lafayette location was previously identified as exposed but is a designed span.*

Questions?



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