

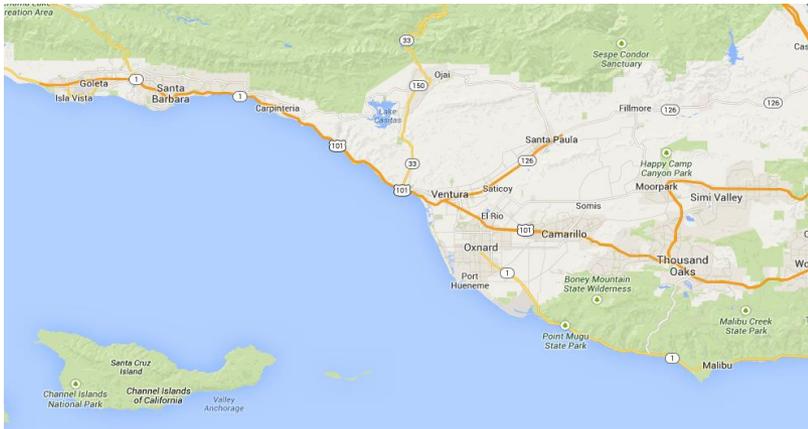
# Goleta Reliability and 2016 El Niño

February 10, 2016

# Discussion Items for Today's Meeting

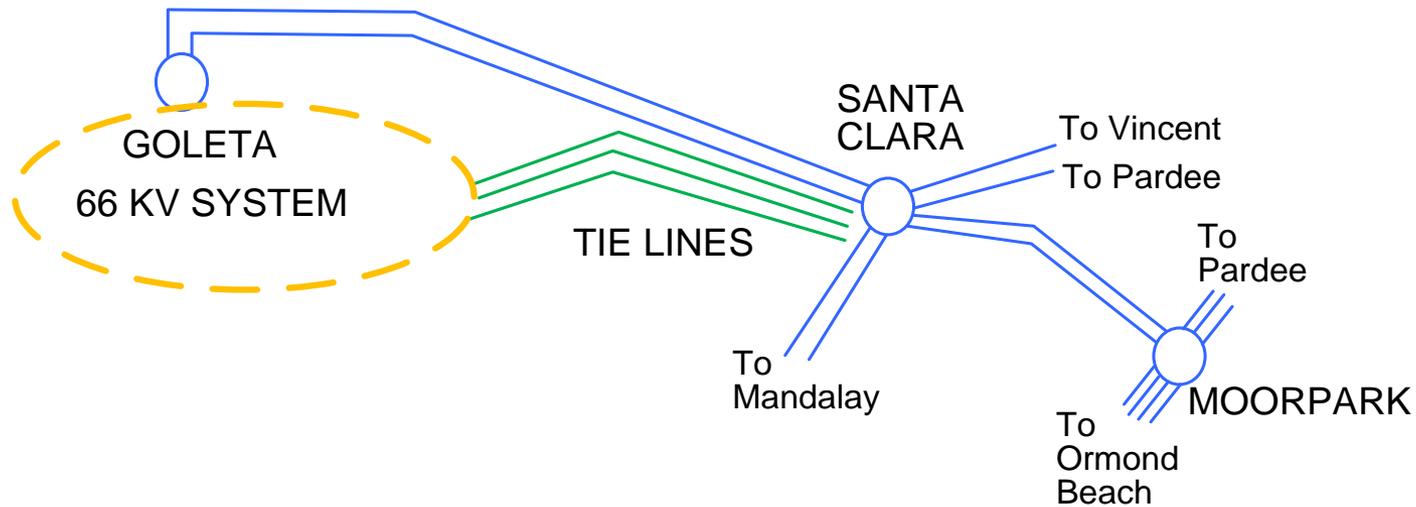
- Santa Barbara Transmission Constraints
- On-Going Reliability Projects
- 2016 El Niño Preparedness
- Agency Coordination
- Safety Tips for the Community

# Santa Barbara Transmission Constraints



## Santa Barbara Local Resources:

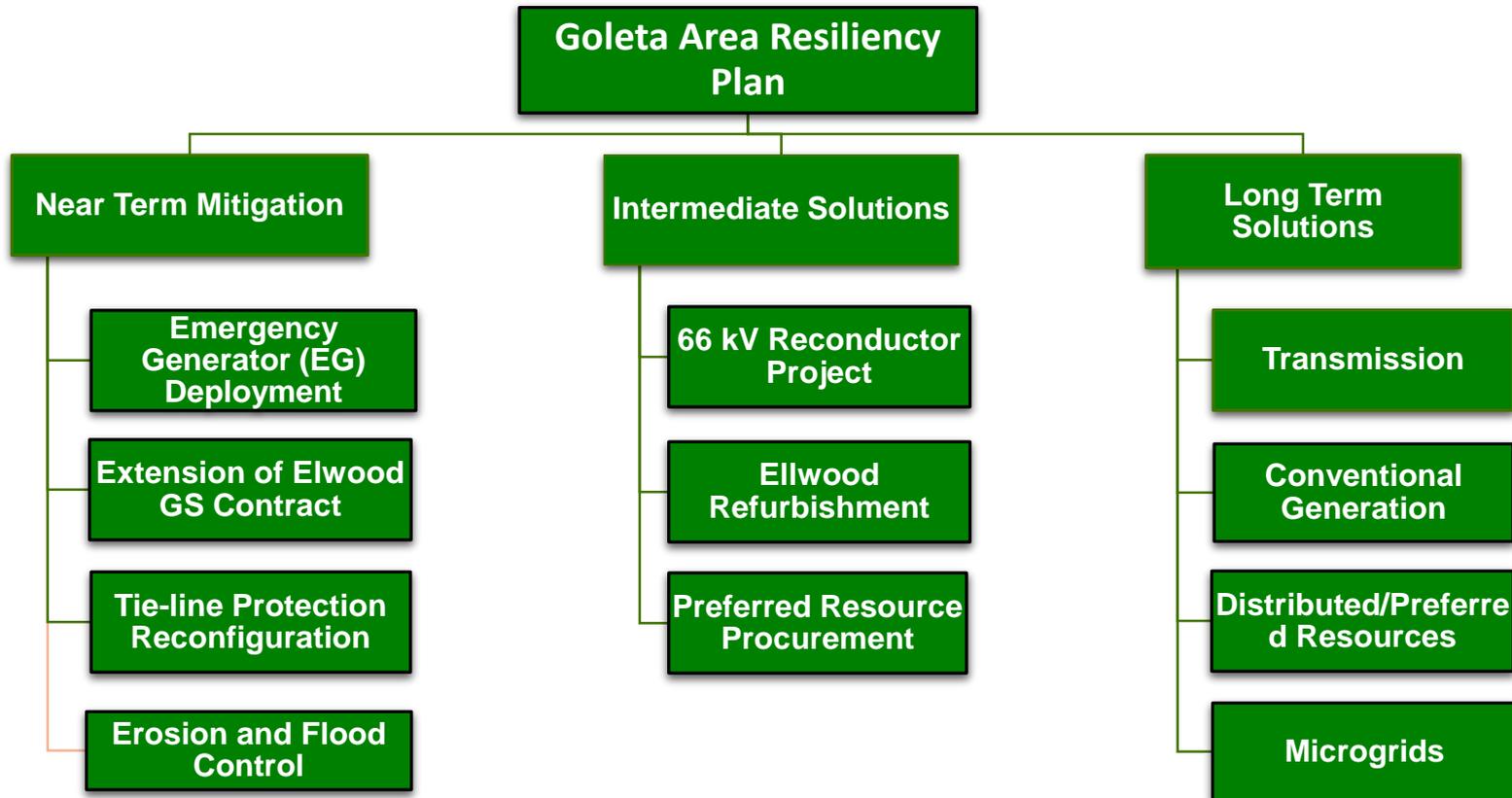
- 220kV Transmission Lines
- 66kV Subtransmission Lines
- Local Generation



# On-Going Reliability Efforts

- Santa Barbara County Reliability Project (66kV subtransmission upgrade)
  - Construction began in 1999
  - Suspended in 2004 by local permitting challenge
  - CPUC has approved; Coastal Commission approval expected in 2016 for 2018 completion
- Additional local generation:
  - Refurbishment of Ellwood Generating Station
  - Additional future generation, including local preferred resources
- Downtown Santa Barbara distribution grid investments and upgrades

# Goleta Area Resiliency Plan

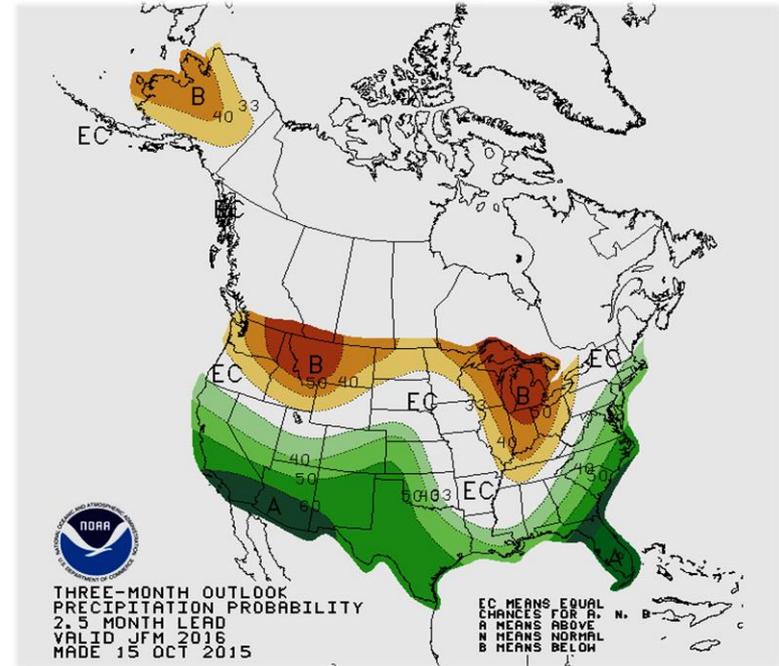


Confidential: Contains non-public Transmission information - Distribution is limited pursuant to FERC standards of conduct.

# 2015-2016 El Niño Forecast



- Strong El Niño predicted for 2016
- Heightened risk of severe weather, including high winds and heavy rain
- Extended drought increases risk of floods, landslides, mudslides, and other hazardous conditions



# 2016 Storm Preparation Efforts

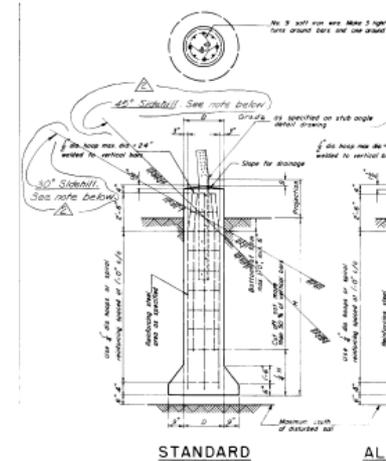
- Territory-wide hazard assessments
- Pre-storm preventative maintenance and mitigation
- Expedited repairs in the event of damage
- Emergency service restoration plan for Santa Barbara



# State and Local Agency Coordination

- Collaboration and consultation with:
  - Santa Barbara County Office of Emergency Management
  - Santa Barbara County Air Pollution Control District
  - California Office of Emergency Services
  - California Independent System Operator
  - California Department of Transportation
  - California Highway Patrol

# What about the foundations of the transmission towers?



- Towers designed to meet or exceed required standards
- SCE follows robust maintenance and inspection schedule
- SCE visual inspections have revealed no structural concerns
- Records audited and lines visually inspected by CAISO in 2014
- Visual damage to footings on this line, as referenced by media, is cosmetic and causes no structural concerns

# Restoration of Service

## Mitigation Plan

Peak Demand; 250MW

- Obtain emergency generation from NRG's Ellwood Generating Station

----->

50MW

- Operate 66kV tie lines at emergency limit

----->

150MW

- Deploy portable generation at substations such as Goleta and Ortega

----->

50MW

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250MW



# Storm Safety & Community Outreach

- **Key safety messages:**
  - Emergency kit
  - Downed lines
  - Traffic safety
- Safety brochures for constituents
- Media outreach
- Outage Schools
  - 12/9/15
  - 1/29/16 (Pending)
- Prepare SoCal
- Online Resources
  - [SCE.com/Safety](http://SCE.com/Safety)
  - [facebook.com/sce](https://facebook.com/sce)
  - [twitter.com/sce](https://twitter.com/sce)
  - [youtube.com/sce](https://youtube.com/sce)



[SCE.com/Safety](http://SCE.com/Safety)

# Emergency Contact Information

- **Report downed wires: 911**
- **Report an outage:**
  - SCE Outage App
  - SCE.com/Outage
  - Or call 800-611-1911 or 855-683-9067
  - Email [scepoc@sce.com](mailto:scepoc@sce.com) (non-emergency)
- **SCE Customer Service: 800-655-4555**
  - Contact this number as well if a generator will be used

# **Circuit Reliability Review**

## **City of Goleta**

January 2016

# Understanding Your Reliability Report

- As your electric utility, we want you to always have power when you need it. To get there, we constantly track and monitor electric outages across our service territory, and we measure our “system reliability” from this data.
- The two metrics we rely on are common in the electric utility industry: the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI). Both are described in more detail on the next page.
- Replacing and upgrading our infrastructure will help SCE maintain or improve SAIDI and SAIFI measurements.
- This report provides historical reliability data for the circuits that serve your jurisdiction and our proposed infrastructure upgrades for the current year.
- To view other reliability reports, visit [on.sce.com/reliabilityreports](https://on.sce.com/reliabilityreports)

# Overview of Goleta

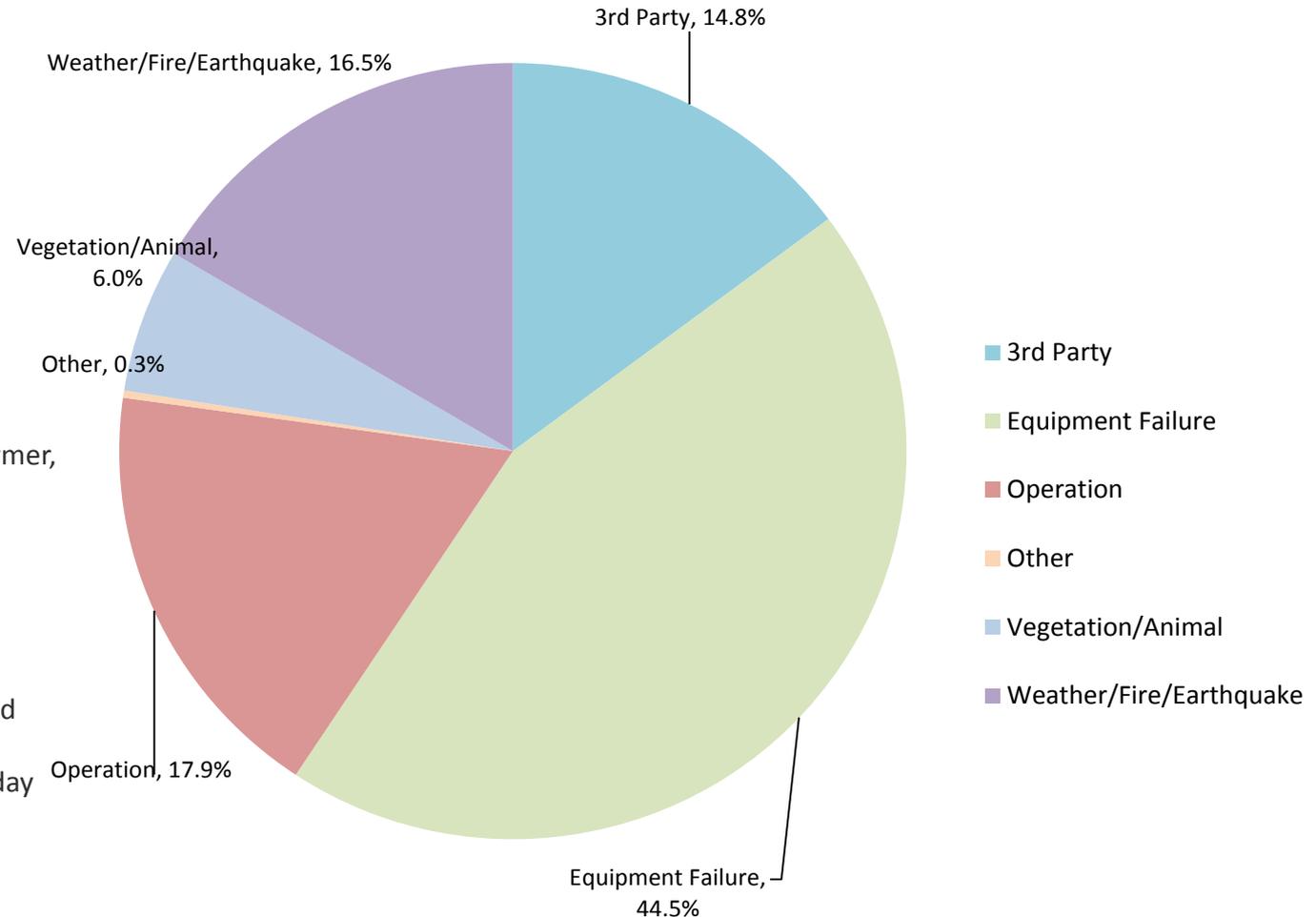
There are 13 circuits that serve Goleta

Circuit Type	Sum of Customers	Circuit Type	Sum of Customers	Circuit Type	Sum of Customers	Circuit Type	Sum of Customers
ACE(16KV)	1,339						
BIDDER(16KV)	147						
ENCANTO(16KV)	3,774						
FRATERNITY(16KV)	3,553						
GAUCHO(16KV)	1,611						
GLADIOLA(16KV)	1,816						
LOS CARNEROS(16KV)	225						
PROFESSOR(16KV)	589						
STORKE(16KV)	3,021						
TECOLOTE(16KV)	2,692						
TRIGO(16KV)	137						
TRUMP(16KV)	144						
WASP(16KV)	2,200						

**Grand Total**                      21,248

# Causes of Repair Outages in Goleta Circuits 2015 YTD

## Contributions to SAIDI by Outage Cause

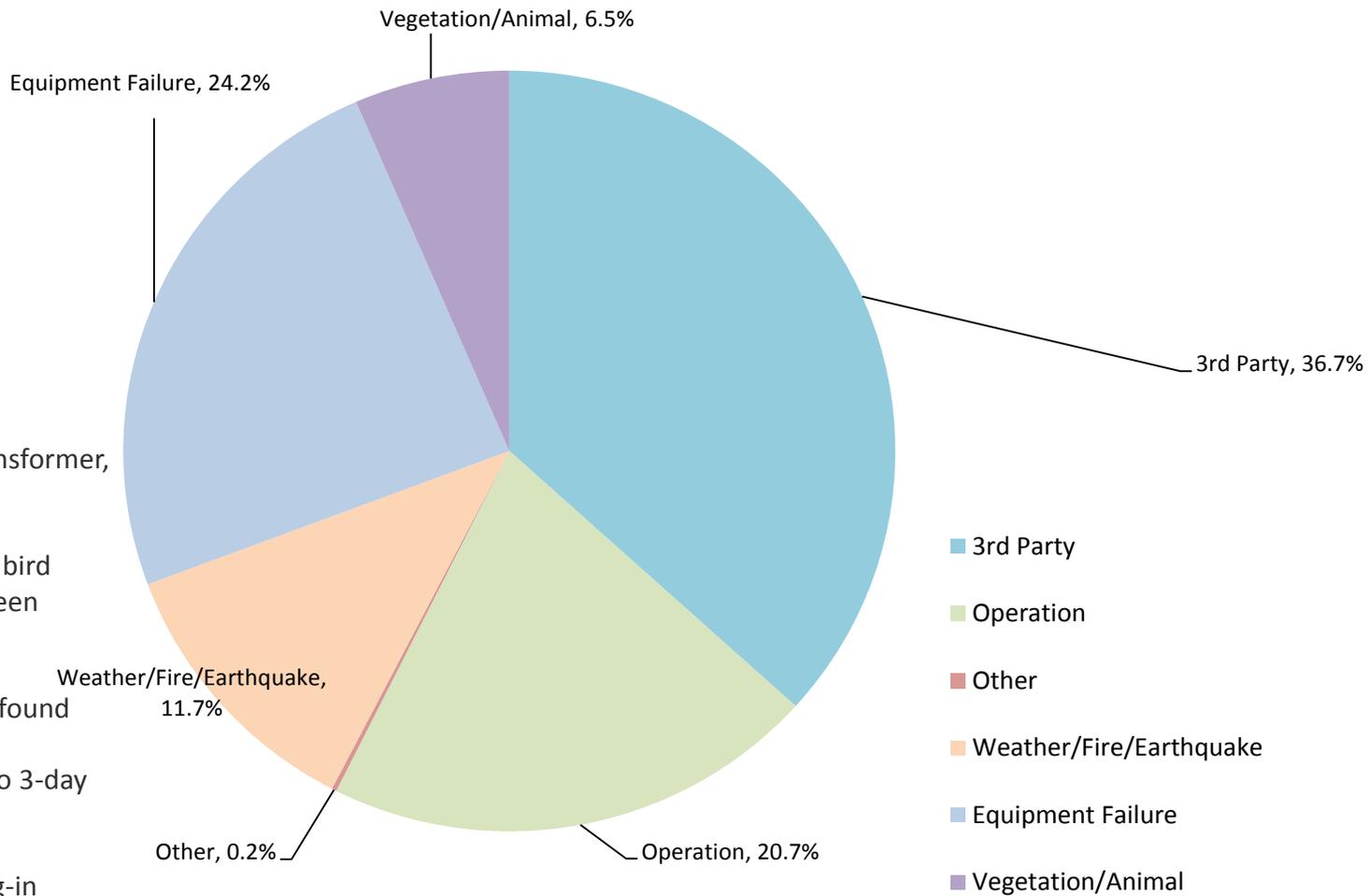


- **Equipment Failure**  
e.g., in-service failure of transformer, switch, or conductors
- **Vegetation/Animal**  
e.g., tree branch, rodent, or bird causing a short circuit between conductors
- **Other**  
e.g., patrolled but no cause found
- **Operations**  
e.g., urgent maintenance w/o 3-day notice
- **3rd Party**  
e.g., balloon, car hit pole, dig-in

**SAIDI** = the cumulative amount of time the average customer is interrupted by “sustained” outages each year.

# Causes of Repair Outages in Goleta Circuits 2015 YTD

## Contributions to SAIFI by Outage Cause



- **Equipment Failure**  
e.g., in-service failure of transformer, switch, or conductors
- **Vegetation/Animal**  
e.g., tree branch, rodent, or bird causing a short circuit between conductors
- **Other**  
e.g., patrolled but no cause found
- **Operations**  
e.g., urgent maintenance w/o 3-day notice
- **3<sup>rd</sup> Party**  
e.g., balloon, car hit pole, dig-in

- 3rd Party
- Operation
- Other
- Weather/Fire/Earthquake
- Equipment Failure
- Vegetation/Animal

SAIFI = the number of times the average customer is interrupted by “sustained” outages each year.

# Circuit Reliability Management

To perform circuit rehabilitation in 2015, the process started in 2012



2012: Review circuit outage records for 2009 – 2011.

Note: The significant volatility in circuit performance requires evaluation of performance over a long period of time to ensure the targeting of “actual” versus “apparent” problem circuits.

2012: Identify candidate “worst” circuits based on outage statistics.

Refine list of circuits based on field personnel input, e.g., engineering, operations, public affairs.

2013: For each targeted circuit, identify improvements and/or replacements which would cost-effectively improve future reliability based on past outage causes and locations, equipment age, and circuit design.

Work may include equipment replacement, installation of isolation devices, and provisions for providing alternate sources of power

2014: Survey the job sites, develop the construction Work Orders, obtain easements, & identify needed permits.

2015: Project construction.

**Rehabilitating circuits is a systematic and objective process.**

# Goleta

## 2016

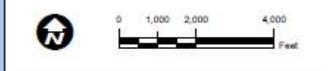
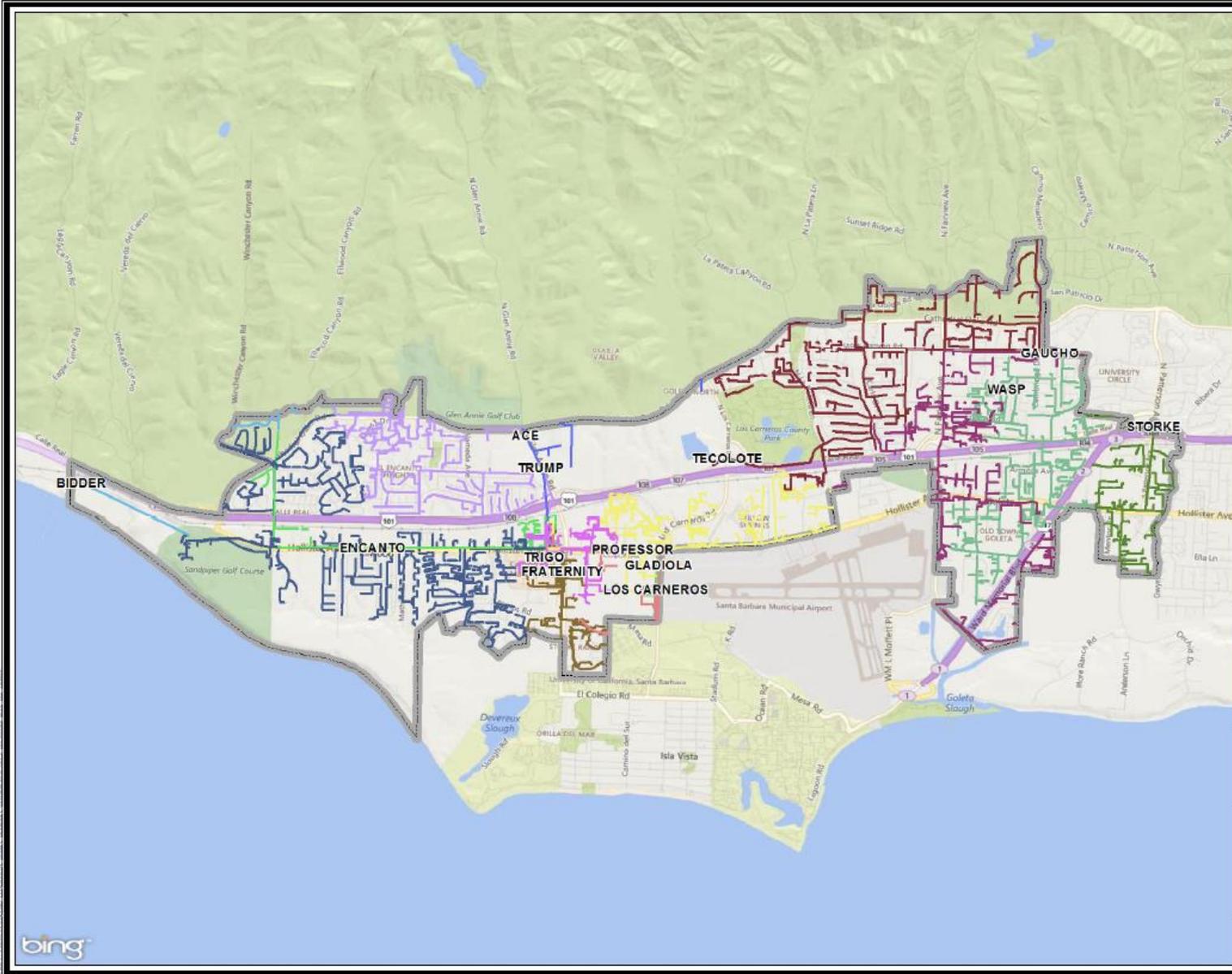
### Capital Improvement Plan

#### All Circuits

City of Goleta

All Goleta Circuits:

- ACE
- BIDDER
- ENCANTO
- FRATERNITY
- GAUCHO
- GLADIOLA
- LOS CARNEROS
- PROFESSOR
- STORKE
- TECOLOTE
- TRIGO
- TRUMP
- WASP

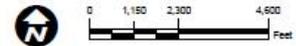
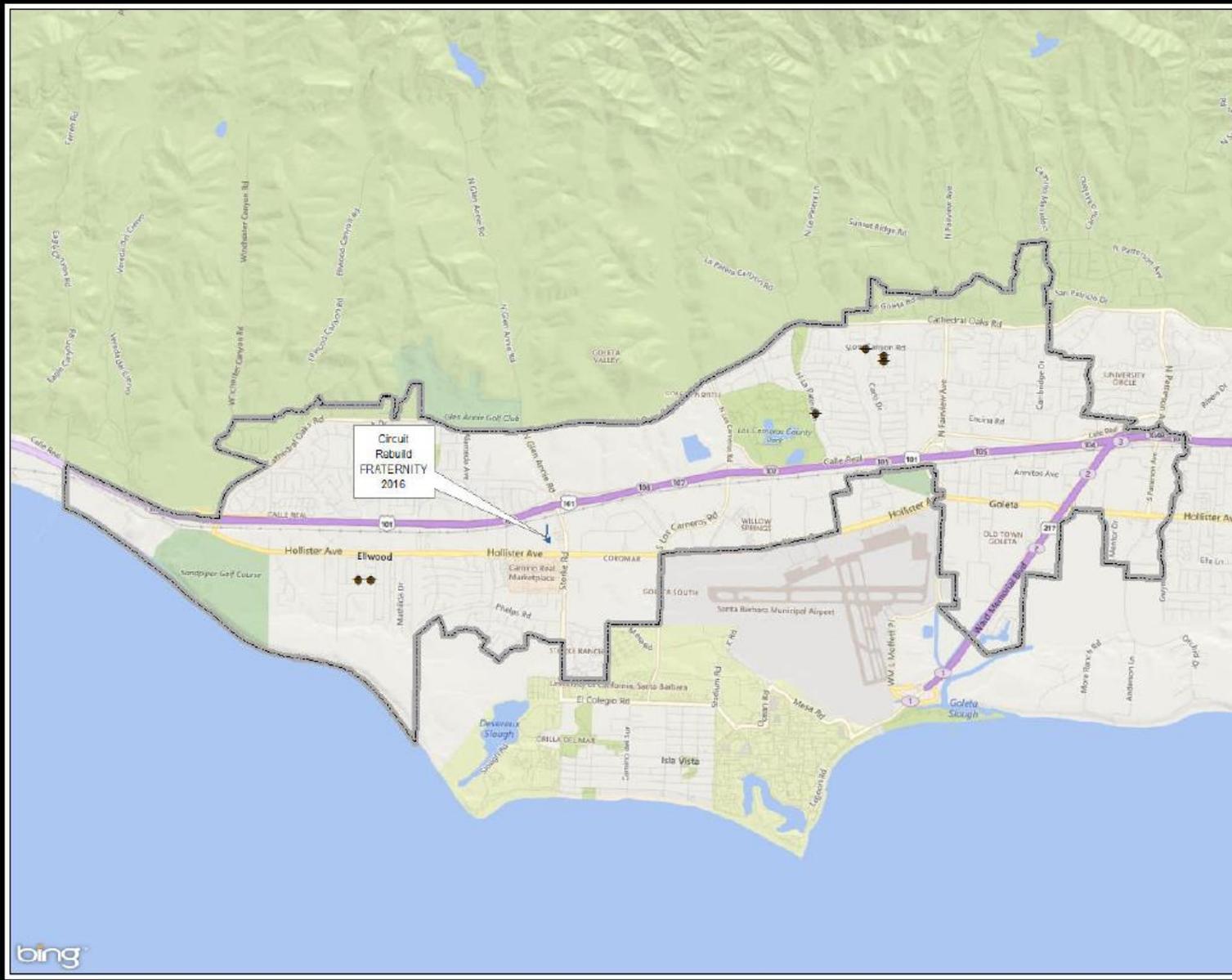


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# Goleta 2016 Capital Improvement Plan

-  City of Goleta
- Replacements/Equipment Upgrade**
-  WOOD POLE REPLACEMENT (6)
- Circuit Rebuild**
-  ENCANTO
-  GLADIOLA



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# Goleta Projects

- FLIR
- LED Street Light Project
- Underground Conversion – Storke
- Hollister Village
- Village @ Los Caneros
- Hilton & Marriott- Hollister
- Hollister Bike Path-Relocation
- Direct Relief-Warehousing Project
- Goleta Valley Hospital Remodel
- Cabrillo Business Park
- Taco Bell Remodel-
- Highway Patrol Hub
- Old Town Road Improvement

## Upcoming 2016

- WASP Infrastructure
- Fraternity Infrastructure
- Preventative Maintenance
- Deteriorated Poles

