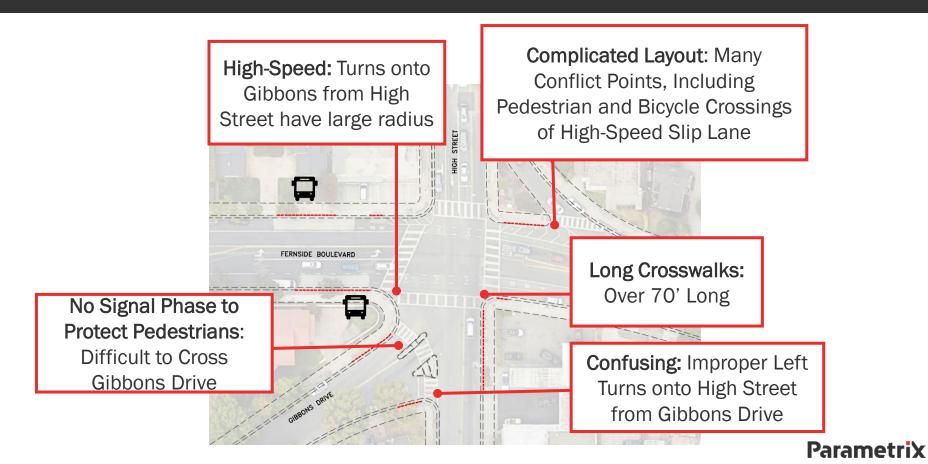
# GIBBONS/HIGH/FERNSIDE INTERSECTION EVALUATION AND TRAFFIC STUDY OVERVIEW

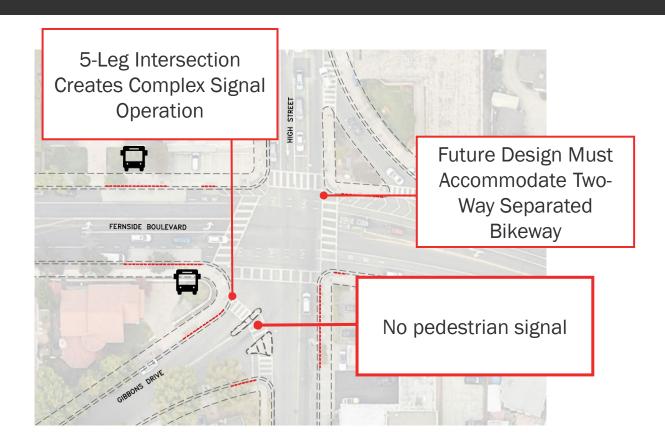


# Intersection Traffic Study

#### **INTERSECTION SAFETY ISSUES**

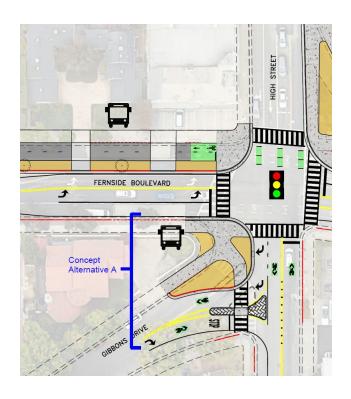


## INTERSECTION OPERATIONS AND SIGNAL PHASING ISSUES





# **ALTERNATIVE A. REALIGN AND RESTRICT LEFT TURN**

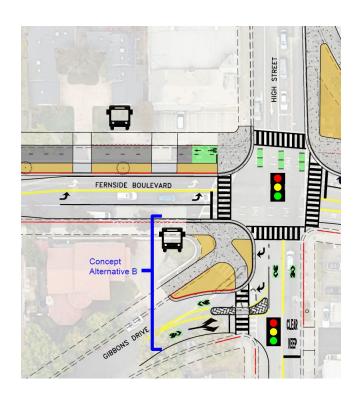


#### **Description:**

- Realigns Gibbons at High Street
- Restricts Gibbons exit to right only on High Street
- Shortens long pedestrian crossings
- Reduces turn radius onto Gibbons



#### ALTERNATIVE B. REALIGN AND ALLOW LEFT TURN

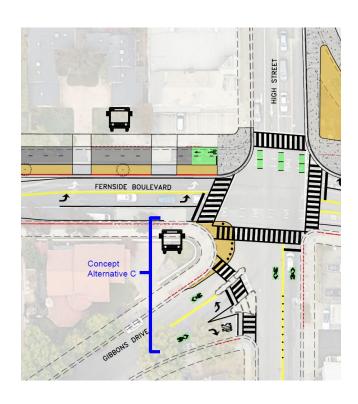


#### **Description:**

- Realigns Gibbons at High Street
- Allows Gibbons exit right and left on High Street with a new signal
- Shortens long pedestrian crossings
- Reduces turn radius onto Gibbons



## **ALT C. LOW-COST IMPROVEMENTS**

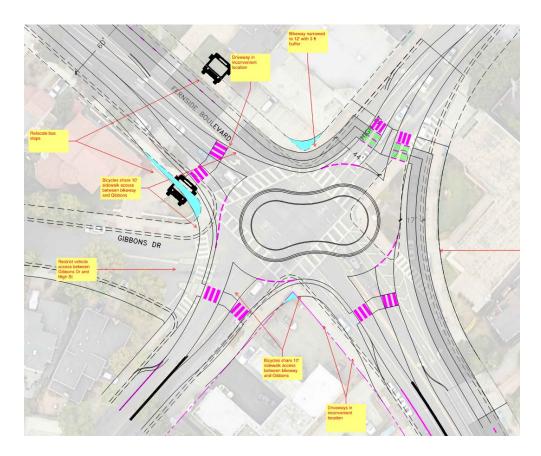


#### **Description:**

- No change to Gibbons alignment
- Adds a pedestrian signal crossing Gibbons Drive only in long-term implementation
- Reduces turn radius onto Gibbons with painted curb extension



#### INSUFFICIENT RIGHT OF WAY FOR ROUNDABOUT



Roundabout analyzed but not recommended:

- Insufficient room for Gibbons leg
- Lengthened paths of pedestrian and bicycle travel
- Non-traditional lane configuration
- Right-of-way impacts



# TRAFFIC STUDY ANALYSES



**Analysis 1** 

**Intersection Safety** and Operations



**Analysis 2** 

Neighborhood Traffic Circulation





**Analysis 1.**Intersection Safety and Operations

# INTERSECTION ANALYSIS KEY QUESTION



How well do the design alternatives improve <u>safety</u> and simplify <u>traffic operations</u> at Gibbons/High/Fernside?

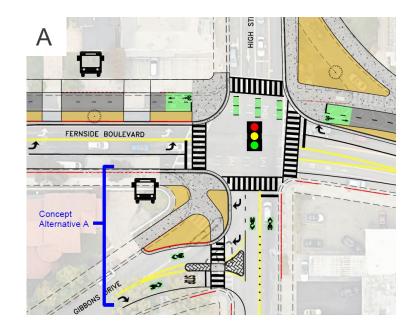
Analysis takes alternatives in the context of the long-term Fernside Boulevard corridor design with the two-way bikeway.





# **ANALYSIS RESULTS: ALTERNATIVE A (TURN RESTRICTION)**







#### Safety: Addresses Key Issues

- Shorter pedestrian crossings
- Slowed vehicle turn speed
- Simplified intersection layout reduces number of conflict points



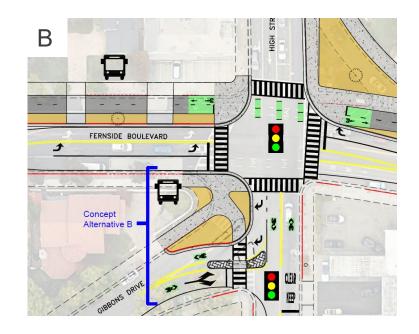
#### **Operations: Minimal Change to Congestion**

- Simplifies intersection with fewer signal approaches requiring dedicated phases
- In the near term, reduces traffic congestion
- Allows for addition of bikeway with minimal change to traffic congestion in long term



# **ANALYSIS RESULTS: ALTERNATIVE B (NEW SIGNAL)**







#### Safety: Addresses Key Issues

- Shorter pedestrian crossings
- Slowed vehicle turn speed
- Simplified intersection layout



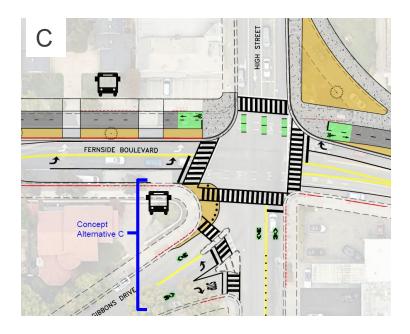
#### Operations: Severe Congestion in Long Term

- In the near term, makes traffic congestion worse on High Street because of the additional signal.
- With long term addition of bikeway, makes traffic congestion on High Street much worse, risking spillover onto other neighborhood streets.



# **ANALYSIS RESULTS: ALTERNATIVE C (LOW COST)**







#### Safety: Addresses Some Issues

• Slower vehicle turn speed



#### **Operations: Severe Congestion in Long Term**

- In the near term, traffic congestion would stay the same with paint-only changes.
- With long term addition of bikeway, makes traffic congestion on High Street worse because of the additional pedestrian signal.



# **INTERSECTION ALTERNATIVES SUMMARY**



Alternative	Safety	Congestion: Near-Term	Congestion: Long-Term
А	Improvement	Improvement	Minimal Change
В	Improvement	Worse	Worse
С	Minor Improvement	No Change	Worse





# Analysis 2. Neighborhood Traffic Circulation (with Alt. A)

# TRAFFIC CIRCULATION ANALYSIS KEY QUESTION





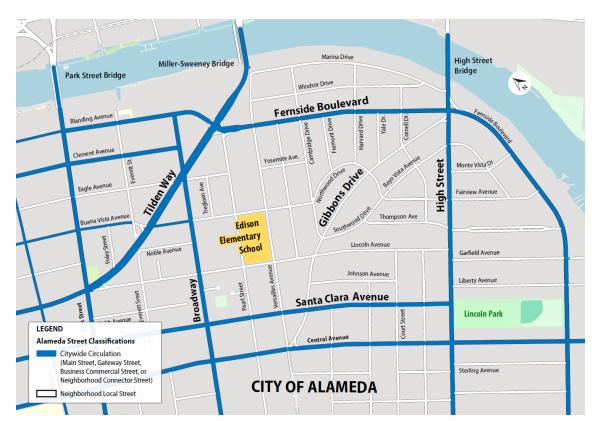
What effect does the turn restriction in Alternative A have on cut-through traffic, and how will traffic redistribute in the neighborhood?

Traffic circulation for Alternatives B & C not studied because they don't have a turn restriction.

Parametrix

#### **EXISTING NEIGHBORHOOD CIRCULATION**





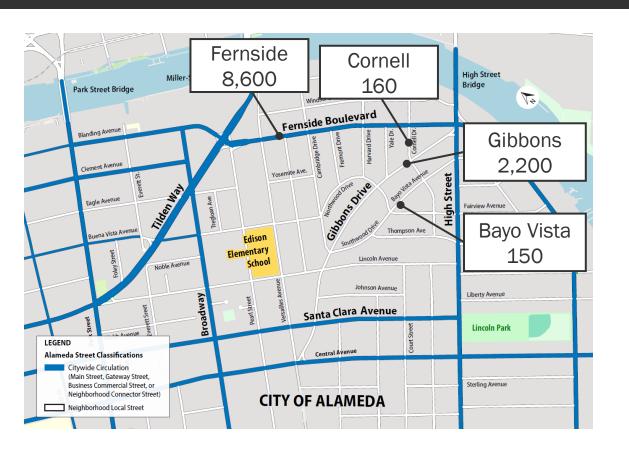
All streets inside the study area are classified as **Neighborhood Local Streets**:

- Target design speed 20 mph
- Target traffic volumes <1,000-4,000 vehicles per day
- Neighborhood Greenway targets <1,500 vehicles per day



#### **EXISTING ESTIMATED DAILY TRAFFIC VOLUMES**





Neighborhood Local traffic volumes <1,000-4,000\* vehicles per day

Neighborhood Connector traffic volumes 4,000-18,000\* vehicles per day

\*High end of target ranges are the maximum capacity of each classification



## **GIBBONS DRIVE EXISTING TRAFFIC**





**31 mph** 

85<sup>th</sup> percentile speed



>55%

Northbound vehicles cutting through



#### **REDISTRIBUTION ANALYSIS**



With the Alternative A left turn restriction, how will drivers who use Gibbons Drive today access High Street?

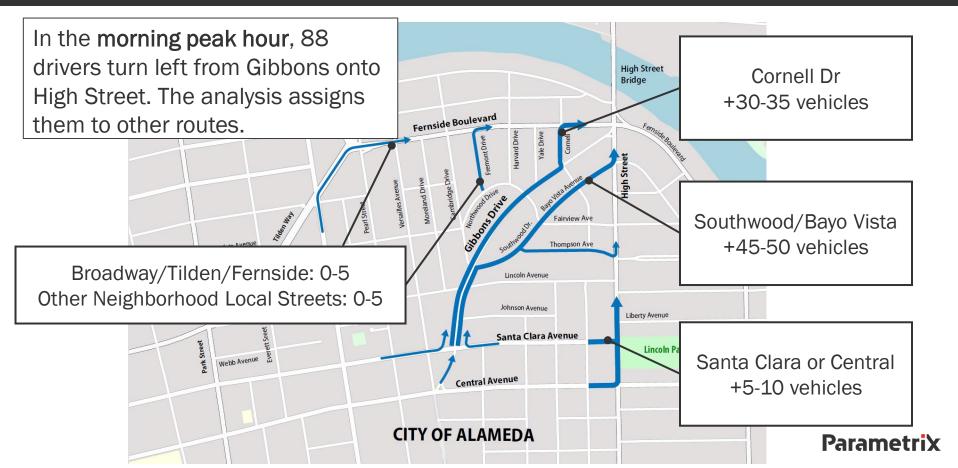
The analysis assumes redistribution through the neighborhood based on:

- Distance
- Street characteristics
- Number of turns and stop signs
- Street parking occupancy



#### **RESULTS: ALTERNATIVE A TRAFFIC REDISTRIBUTION**





# **HOW DO DAILY TRAFFIC VOLUMES COMPARE WITH OTHER STREETS?**



