King Safe Routes to School: Hopkins / The Alameda.

CITY OF BERKELEY

MAY 18, 2017
Process and Timeline

- May 10, 2017: Bike / Ped Subcommittee Meeting
- May 18, 2017: Transportation Commission Recommendation
- July 2017: Repaving of The Alameda
- 2017-2018: Implementation of Interim Treatments
- 2018: Evaluate: Collect data and review pilot
- 2019/2020: Seek input from public and commission
- 2019/2020: Prepare and implement final design with repaving of Hopkins
Presentation Outline

Pre-construction conditions
Why a protected intersection here?
What is a protected intersection?
Benefits of current design
Feedback to date
Interim treatments
What’s next?
Pre-construction conditions

Pedestrian collisions: 5
  - 2 were after the road diet (Aug 2013)

Bicyclist collisions: 1

Under 18 years old: 1

Over 60 years old: 2

80% involve turning vehicles.
All turning vehicles that hit pedestrians were at fault for violating the pedestrian Right of Way.
Pre-construction conditions
Hopkins/Alameda vs. Thousands of Berkeley Intersections

- Of **24** Berkeley intersections that have had more pedestrian collisions:
  - **6** have safety projects completed or in-progress
  - **4** have projects pending
  - The remaining **14** have much higher pedestrian and vehicular volumes, such as San Pablo/Gilman and University/MLK

- Pedestrians at Hopkins/Alameda have among the highest *per capita* risk for being hit by a vehicle

- The Pedestrian Master Plan identified Hopkins/Alameda as the #19 high-priority intersection out of 34 identified
Why a protected intersection here?

- Safe Routes to School
  - Limited Time to Spend Grant Funds ($180,000)
- Complex Drainage and ADA Considerations
  - Time to Design
  - Cost to Build
- Bicycle comfort
  - Preserves bike lanes with bulb-out concept rather than forcing them next to traffic
- “Protected Intersection” Pilot
  - Common in The Netherlands, which has the best cycling safety record globally
  - 12 in the US. 3 in California
- Need to Evaluate Design
What is a protected intersection?
What is a protected intersection?
What is a protected intersection?
What we know about safety

2011 Dutch study of bike lane deflection (setback)
Base case: bike lane without deflection or no bicycle facility

vs.

Test cases:
- Bike lane with 0-6 ft deflection: +3% crash risk
- Bike lane with 6-16.5 ft deflection: -45% crash risk
- Bike lane with 16.5+ ft deflection: -7% crash risk
What is a protected intersection?
Adoption of guidance in US

MassDOT Separated Bike Lane Planning and Design Guide

US DOT Separated Bike Lane Planning and Design Guide (FHWA)

6’-16.5’ setback

15’-25’ setback
What is a protected intersection?
United States built examples

First wave (2015):
- Salt Lake City, UT
- Austin, TX
- Davis, CA

Second wave (2016):
- Atlanta, GA
- Berkeley, CA
- Chicago, IL
- San Francisco, CA
- College Station, TX

Rendering from Salt Lake City, UT
Benefits of current design
Pedestrian Injury Severity vs. Vehicle Speed


Higher speeds lead to significantly higher risk of severe injury and death.
Benefits of current design

Before

Turning speed: 18-20 mph
Severe injury risk: 14%-17%

After

Turning speed: 13-16 mph
Severe injury risk: 7-10%

- **Reduce corner radius**
- **Improve sightlines**
- **Reduce pedestrian crossing distance**
- **Consolidate bus routes**

Nearly 50% reduction in pedestrian severe injury risk
Feedback

- Unfamiliar/Confusing/Cluttered/Islands in the Way
- Parking Changes/Blue and Green Zones Moved
- Aesthetics in Context of Library
- Traffic Delays/Queuing/Slow Turning
- Quality Control
- Gas Station Access and Circulation
- Private Buses Stop in Former Bus Stop

Public Comments from May Bike/Ped Subcommittee Meeting

- 11 out of 15 in support of planned treatments / improvements to proposal
Planned Treatments
Aesthetics and Clarity

- Rose-Colored Treatment on Islands and Surrounding Asphalt Border Similar to Sidewalks
- Yellow School Zone Crosswalks with Solid Outline
- Hunter Green Bike Lanes
- New Asphalt Paving for Cars
- Also Parking, Access, Signal Timing
Planned Treatments

Important Geometric Principals

- Repaving for cleaner, smoother intersection
- Improved alignment through restriping lanes
  - Straighter path through intersection
  - More clearly indicated turning path around corners
- Narrowed openings between islands
- More gradual bike lane transition
Planned Treatments

Important Geometric Principals

- More clarity for drivers making turns by more clearly designating pedestrian and bike refuge / waiting areas
  - Pedestrian refuge with concrete and detectable warning surfaces
  - Bike areas with green paint
Planned Treatments

Important Geometric Principals

- Narrowed openings between islands to clarify space and guide pedestrians closer to curb ramps
Reduced vehicle queueing on eastbound Hopkins approach due to right-turning traffic having increased queue space on The Alameda southbound
More gradual transition for bikes
Planned Treatments
Important Geometric Principals

- Green-backed “sharrows” to guide bikes into and out of traffic
Operational Proposals

- Work with gas station on access management
- Automatic pedestrian signal recall
- Green zone on Hopkins for library book returns
- Resume shuttle / school bus use of AC Transit stop in new location on Hopkins
Additional Considerations
Alternatives for signal timing

EXISTING:
Permitted lefts

PROPOSED OPTION:
Split Phasing
What’s Next?

Evaluation Plan
◦ Counts and observations
  ◦ Safety
  ◦ Behavior/compliance
  ◦ User profile

Future Opportunities
◦ Adding landscaping and green infrastructure
◦ Bike signals
◦ Design alternatives: bulbouts, alternative traffic control such as a roundabout, etc.
◦ Cost, feasibility, effectiveness, maintenance, neighborhood acceptance, etc.
Built Examples
Salt Lake City, UT

WBUR Salt Lake City

Evolution of the Protected Intersection
Alta Planning & Design

Back to US Examples
Austin, TX

People for Bikes

Evolution of the Protected Intersection
Alta Planning & Design

Back to US Examples
Evolution of the Protected Intersection
Alta Planning & Design

Back to US Examples
Chicago, IL

San Francisco Bicycle Coalition

Back to US Examples