AGENDA.

1. Project Overview
2. Objectives
3. Implementation Concepts
OVERVIEW.

1. Smart Cities Grant
2. Scoping Document
3. Alameda CTC Measure BB - $10M
OVERVIEW.
OVERVIEW.
The Team

1. City of Fremont
2. Consultant Team:
   • Parsons
   • Fehr & Peers
   • Placeworks
3. Stakeholders:
   • City
   • Alameda CTC
   • AC Transit
   • Caltrans
The Safe and Smart Corridor project will demonstrate “Complete Streets” design concepts, sensor-based infrastructure, communication systems, smart lighting, adaptive signal control and connected vehicles/infrastructure/devices to achieve a number of objectives for the corridor.
OBJECTIVES.
Incorporate Transportation Goals

City of Fremont
Bicycle Master Plan
Adapted by City Council July 10, 2018

INSTALL DYNAMIC / VARIABLE SPEED WARNING SIGNS
Speed feedback signs (dynamic speed warning signs) display speeds to vehicles approaching
the worksite or warning vehicle speeds in locations where people drive faster than desired.

Why was this selected for Fremont? Multilane roadways with posted speeds of 40 mph
are considered a risk factor in Fremont. Additionally, arterial with curves were noted as a risk.

Figure 27: Example of Variable Speed Warning Sign

Source: Kittelson and Associates, Inc.

City of Fremont
Climate Action Plan
November 2012

Fremont Safe & Smart Corridor
OBJECTIVES.
Seek First to Understand...

- Reviewed planning documents
- Reviewed collision data
- Reviewed travel behavior
- Inventoried transportation infrastructure
- Investigated other existing and planned projects
OBJECTIVES.

... Then to be Understood

• Reviewed City’s Vision Zero Action Plan

• Highlighted actions that this project could address: the “Vision Zero Implementation Assessment”

• Followed by Stakeholder workshop
OBJECTIVES.

... Then to be Understood

- Stakeholder Workshop
- Summarized existing conditions, public outreach process
- Introduced draft project objectives and planned system concepts
OBJECTIVES.
Final Objectives

Vision: The Safe and Smart Corridor project will demonstrate, primarily through technology applications at signalized intersections, Fremont’s dedication to achieving its Vision Zero traffic safety goals, efficient multimodal mobility and sustainability goals.

Goals (General)

Improve safety and mobility for all modes
Contribute to the City’s sustainability goals
Align project concepts with existing plans
Align project communication and management systems with similar systems also managed by the City
Provide accommodations for ongoing and future AC Transit and Alameda CTC projects planned for the corridor

Engage with the community and stakeholders
Keep the end in mind, i.e. ensure that operations and maintenance needs are a key consideration when developing projects.
Make Fremont Boulevard a “testbed” of sorts - Focus innovation on key issues, be flexible for future.
### OBJECTIVES.

#### Specific Goals

<table>
<thead>
<tr>
<th>Safety / VZ</th>
<th>Mobility</th>
<th>Parking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incentivize safer auto speeds, give City tools to monitor / address specific speed-related issues</td>
<td>Deploy technologies to assist mobility-impaired users in the corridor</td>
<td>Expand Centerville Parking system with technology that will allow for dynamic pricing</td>
</tr>
<tr>
<td>Enhance controlled and uncontrolled pedestrian crossings with safety-focused technologies</td>
<td>Modernize the traffic signal system to achieve efficiency gains, reduce signal-related delay and enhance mobility for all modes on the corridor</td>
<td>Provide dynamic wayfinding to available parking supply at Centerville station, allow for future possibility of online reservation</td>
</tr>
<tr>
<td>Enable enhanced monitoring of pedestrian activity and behavior, allowing the City to target enhancements as specific locations.</td>
<td>Allow for transit reliability improvements being considered by AC Transit</td>
<td>Consider dynamic curb space management system for the on-street parking and loading that exists on the corridor.</td>
</tr>
</tbody>
</table>
OBJECTIVES.

Specific Goals

Data Communications

Look into opportunities provided by license agreements with wireless carriers

Standardize data communications on the corridor, allowing for current and future bandwidth needs

Communicate signal system data in a format consistent with ITS standards, and with existing City protocols
# IMPLEMENTATION:

## Actions

<table>
<thead>
<tr>
<th>Category</th>
<th>Action Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety / Vision Zero</td>
<td>1</td>
<td>Provide incentives for safer auto speeds, provide the City with enhanced tools to monitor and address specific speed-related issues on the corridor</td>
</tr>
<tr>
<td>Safety / Vision Zero</td>
<td>2</td>
<td>Enhance controlled and uncontrolled pedestrian crossings with safety-focused technologies, while considering low-cost traditional enhancements as well.</td>
</tr>
<tr>
<td>Safety / Vision Zero</td>
<td>3</td>
<td>Enable enhanced monitoring of pedestrian activity and behavior, allowing the City to target enhancements as specific locations.</td>
</tr>
<tr>
<td>Mobility</td>
<td>4</td>
<td>Deploy technologies (traditional and innovative) to assist mobility-impaired users in the corridor</td>
</tr>
<tr>
<td>Mobility</td>
<td>5</td>
<td>Modernize the traffic signal system (detection and control) to achieve efficiency gains, reduce signal-related delay and enhance mobility for all modes on the corridor</td>
</tr>
<tr>
<td>Mobility</td>
<td>6</td>
<td>Allow for transit reliability improvements being considered by AC Transit</td>
</tr>
<tr>
<td>Parking</td>
<td>7</td>
<td>Expand beyond the planned paid parking and monitoring system at Centerville Station with technology that will allow for dynamic pricing</td>
</tr>
<tr>
<td>Parking</td>
<td>8</td>
<td>Provide dynamic wayfinding to available parking supply at Centerville station, allow for future possibility of on-line reservation</td>
</tr>
<tr>
<td>Parking</td>
<td>9</td>
<td>Consider dynamic curb space management system for the on-street parking and loading that exists on the corridor.</td>
</tr>
<tr>
<td>Data Communications</td>
<td>10</td>
<td>If possible, take advantage of license agreements with wireless carriers</td>
</tr>
<tr>
<td>Data Communications</td>
<td>11</td>
<td>Standardize data communications on the corridor, allowing for current and future bandwidth needs</td>
</tr>
<tr>
<td>Data Communications</td>
<td>12</td>
<td>Communicate signal system data in a format consistent with ITS standards, and with data communication standards for other City departments</td>
</tr>
</tbody>
</table>
### IMPLEMENTATION.

#### Concepts

- In Progress! 31 Concepts tied to 12 Actions. Each Concept is tied to overall goal of mobility, safety, innovation and sustainability

<table>
<thead>
<tr>
<th>#</th>
<th>PROJECT CONCEPT</th>
<th>WHERE APPLIED</th>
<th>BRIEF DESCRIPTION</th>
<th>ACTIONS ADDRESSED</th>
<th>MOBILITY</th>
<th>SAFETY</th>
<th>SUSTAINABILITY</th>
<th>INNOVATION</th>
<th>COST</th>
<th>COMPLEXITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AI Video Analysis</td>
<td>Entire corridor</td>
<td>Utilize a cloud-based artificial intelligence platform to process video throughout the corridor to analyze traffic patterns and report of safety and operational metrics.</td>
<td>2, 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2</td>
<td>Signal Passive Pedestrian Detection</td>
<td>Ter 1: traffic signals with history of pedestrian collisions and near schools. Ter 2: all other signalized crosswalks</td>
<td>Implement passive detection to activate or extend traffic signal walk phases based upon pedestrian presence in signalized crosswalks.</td>
<td>2, 3, 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>Ped-X CV Application</td>
<td>Ter 1: crosswalks with history of pedestrian collisions, in close proximity to schools, and where measured vehicle speeds exceed 40 MPH. Ter 2: all other crosswalks</td>
<td>Implement passive detection of pedestrian presence in crosswalks and provide a warning to approaching vehicles via V2I messaging.</td>
<td>2, 4</td>
<td></td>
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</tr>
</tbody>
</table>
CONCEPT DESCRIPTION | 2: SIGNAL PASSIVE PEDESTRIAN DETECTION

IMPLEMENTATION.

Concepts

MAP

ILLUSTRATION

DESCRIPTION

Detectors (video is preferred) are installed on poles and configured with detection zones within the crosswalk. Camera data is processed in a nearby cabinet. Upon detection of a pedestrian in the crosswalk, a walk call or extension is executed by the controller. Data can also be transmitted back to the Traffic Operations Center, where additional metrics can be analyzed.

LOCATIONS

Tier 1:
- Based on collision history:
  - Mowry Ave (7 ped collisions 2009-2015)
  - Chapel Way (7 ped collisions 2009-2015)

Near schools [note that the ped collision report said that 1/3 of the ped collisions were in the 1-mile near the schools]:
- Central Avenue
- Alder Avenue
- Gibraltar Drive
- Eggers Drive
- Country Drive

Tier 2:
- Remaining signalized crosswalks:
  - Paseo Padre Pkwy
  - Darwin Dr
  - Ferry Ln
  - Decoto Rd
  - Tamayo St
  - Nicolet Ave
  - Thornton Ave
  - Peralta Blvd
  - Capitol Ave
  - Beacon Ave
  - Walnut Ave
  - Sundale Dr
  - Bidwell Dr
  - Stevenson Blvd
  - Mission View Dr
  - Margery Dr
  - Bremner Blvd
  - Clover Ave
  - Eugene St
  - Washington Blvd / Bay St

OBJECTIVES

- Safety / Vision Zero:
  - Enhance controlled and uncontrolled pedestrian crossings with safety-focused technologies, while considering low-cost traditional enhancements as well.

- Safety / Vision Zero:
  - Enable enhanced monitoring of pedestrian activity and behavior, allowing the City to target enhancements as specific locations.

- Mobility:
  - Deploy technologies (traditional and innovative) to assist mobility-impaired users in the corridor.

ACCTIONS

HIGH LEVEL COSTS

- Tier 1 Intersections
- Tier 1 & 2 Intersections
- Tier 1 & 2 Intersections with Cloud

COMPLEXITY

- Local Improvements
- With Cloud

OTHER RELATED CONCEPTS

- 1: AI Video Analysis
  - Monitor crosswalk activity

- 3: Ped-X CV Application
  - Detection by other means

- 10: V2I Pilot
  - In-vehicle feedback of pedestrian presence

- 14: WiFi Travel Time
  - Certain pedestrian detectors also have built-in WiFi sensors

- 17: In-Pavement Warning Lights
  - May be similarly activated

- 29: Software Dashboard
  - Data access in TOC

ENARIO PASSIVE PEDESTRIAN DETECTION
IMPLEMENTATION.

Concepts

- Video w/ AI: Hot Spots
- Passive ped detection
- Create CV Testbed
- Expand B2I Pilot
- PED-X CV Application
- PED-SIG CV Application
- Adaptive lighting
- Speed monitoring / feedback (future enforcement)
- Adaptive traffic signal timing based on speed
- Dynamic speed limits
- Leading Ped Intervals
- Integrate other MOE’s into City DSS (e.g. LTS, Transit Reliability)
- Bike detection
- Improve EVP system
- Expand fiber optic connectivity
- Expand travel time / OD readers and/or Big Data
- Experiment with in-pavement lights at controlled / uncontrolled crossings
- Improve crosswalk lighting
- Consider variable lane assignment
- Expand Adaptive System, ATSPMs
- Expand AC Transit FLEX service, provide C2C connection
- Implement asset management / health monitoring
IMPLEMENTATION.

Concepts

- Examine opportunities to use ACE parking video for monitoring and real-time info
- Open Data Portal
- Transportation Infrastructure Dashboard that links disparate software apps
- Map the corridor, build data sharing platform (e.g. LADOT MDS or SharedStreets)
IMPLEMENTATION.

Schedule

- Preliminary Design – wrap up in July
- SE process + Final Design – starts now, finishes Fall 2019
- Industry Outreach
- Construction starts in 2020
THANK YOU.

https://fremontsmartcorridor.org/
Speed cameras may be on table again for San Jose and San Francisco

The Zero Traffic Fatalities Task Force could this week discuss a proposal to test automated cameras on city streets in San Francisco and Santa Clara County.

As pedestrian, bicycling and auto fatalities continue to mount, California will convene a new Zero Traffic Fatalities Task Force this week to consider a variety of ways to slow drivers. That means a proposal to test automated cameras on city streets in San Francisco and Santa Clara County may be back on the table.

The group hopes to come up with possible solutions by December 2020. A proposal to conduct a five-year pilot automated camera project to catch speeders in the two counties two years ago failed when needed legislation was not approved in Sacramento.

“I know this will cause many to go berserk, but with speeders easily going 80 mph-plus and using emergency lanes on both sides of freeways to pass, it’s time to install speed...