

Cupertino Traffic Collision Data Analysis

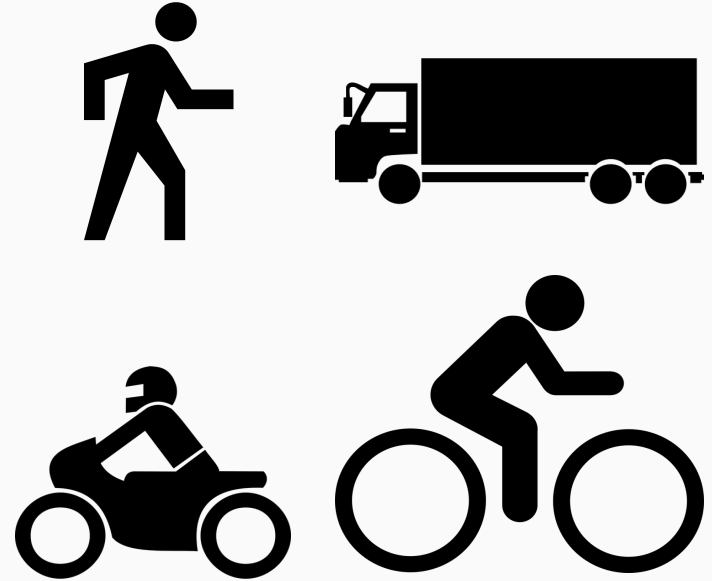
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Oct 2020 - Jan 2021
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Background

- The Smart City pilot project's aims to make the city safer with new technology.
- The Commision wants data on which streets are more susceptible to accidents and what vehicles were involved.
- This data should be easily understandable through visualization.

The Project Goals

- The Commission requires Collision data from the past 5 years.
- This data must be in the form of a map and display the collision type.
- The types of collisions are: motorcycles, vehicles, bicycles, and pedestrians.



Data Retrieval

Using the Santa Clara County SWITRS website, the raw data is retrieved as CSV file along with meta information about data.

Data Processing

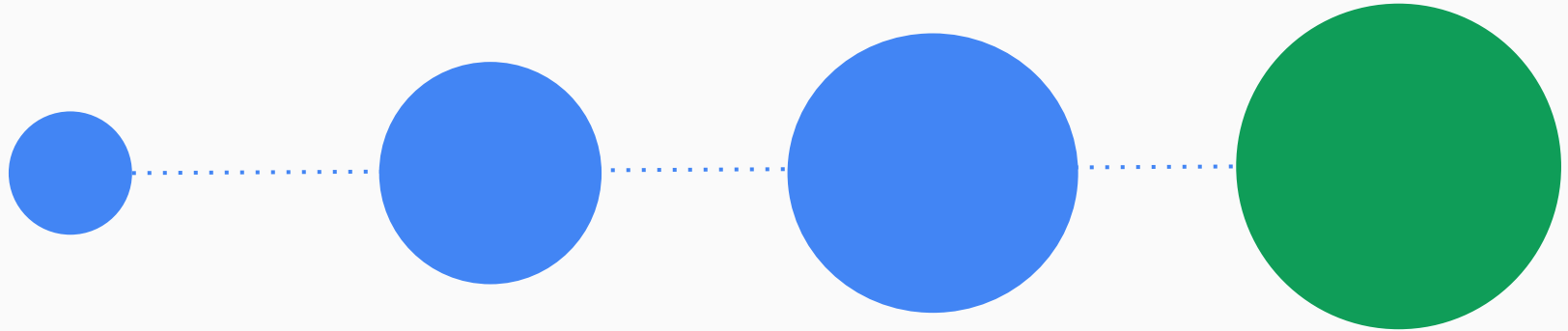
Using Java and Python programming, unnecessary data was cleaned up to make the map visuals relevant.

Data Visualization

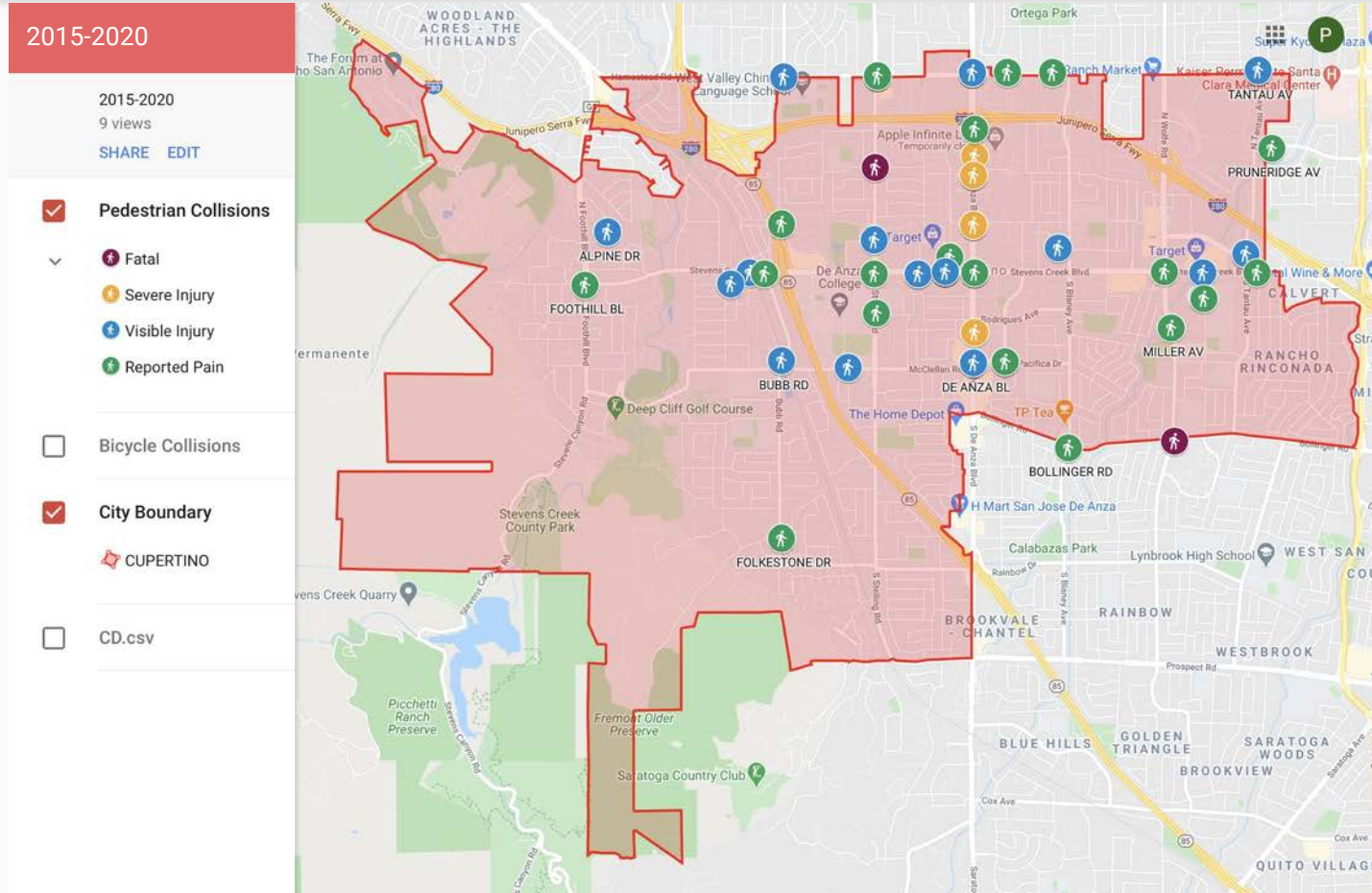
Using Google maps, the data was applied in the map format for easier human interpretation.

Data Analysis

From the maps, data was interpreted and some conclusions were derived (in the following slides).



Pedestrian Collisions Map



Bicycle Collisions Map

2015-2020

2015-2020

9 views

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☐ Pedestrian Collisions

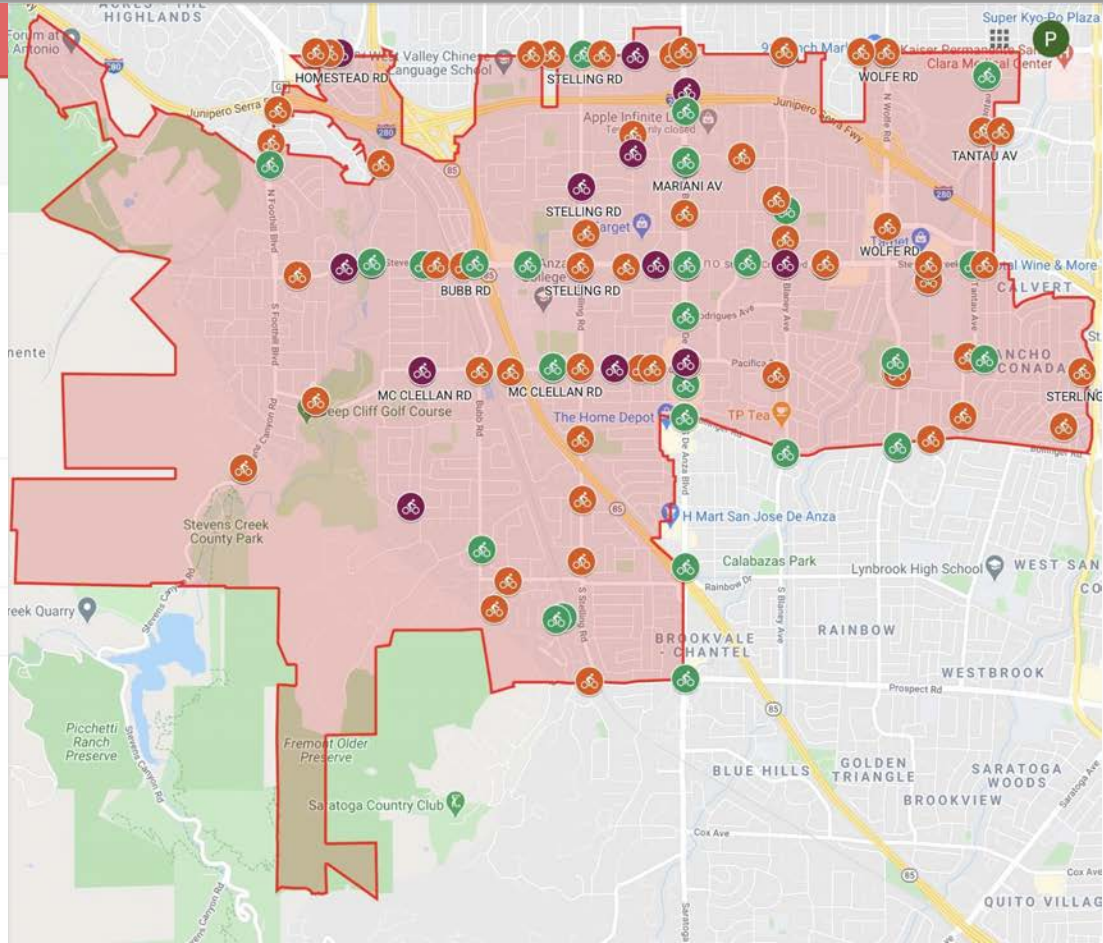
☒ Bicycle Collisions

☐ Severe Injury
☐ Visible Injury
☐ Reported Pain

☒ City Boundary

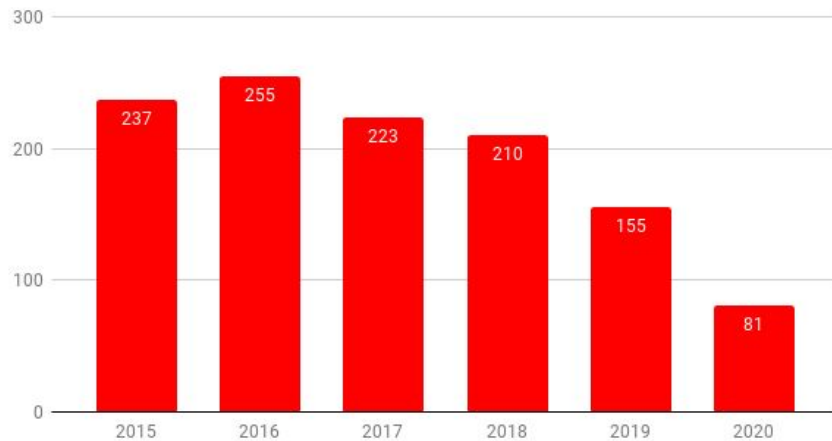
 CUPERTINO

☐ CD.csv

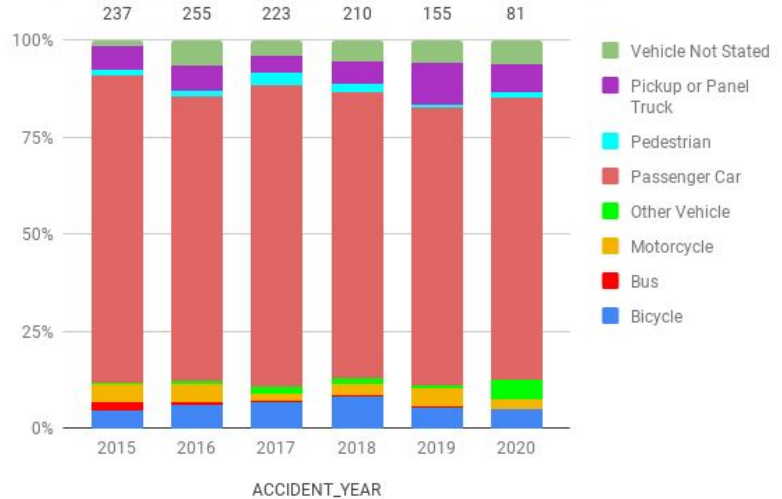


All Collisions by Year and Type

All Accidents By Year

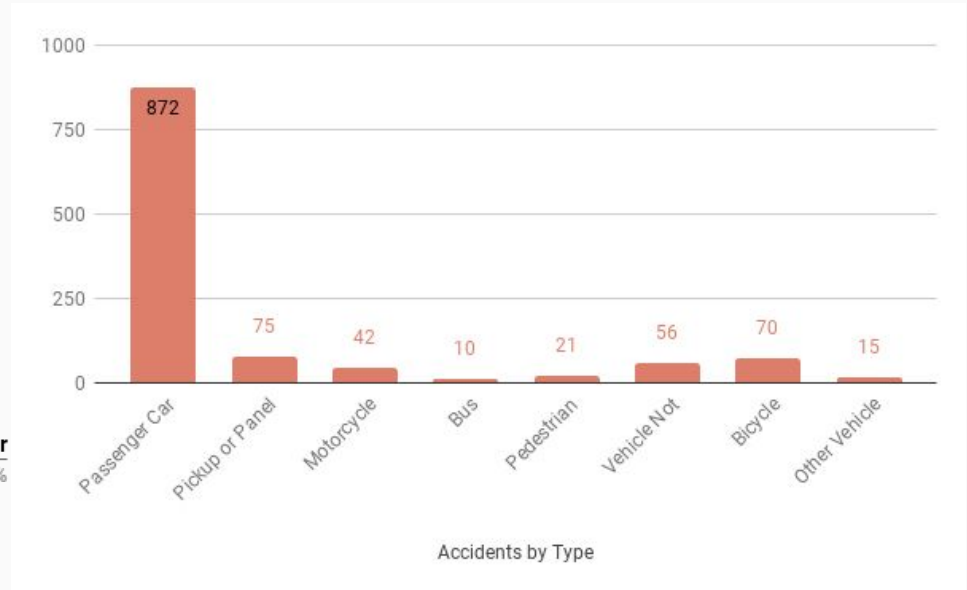
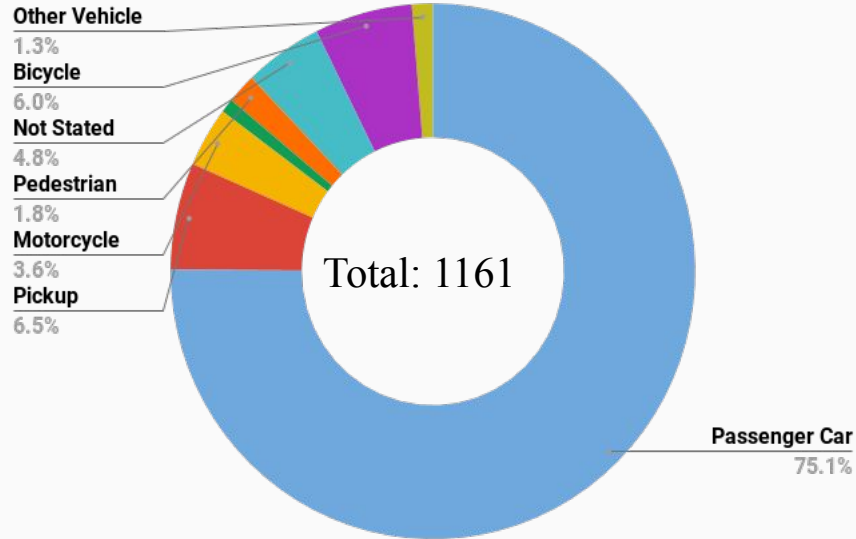


Bicycle, Bus, Motorcycle, Other Vehicle, Passenger Car...

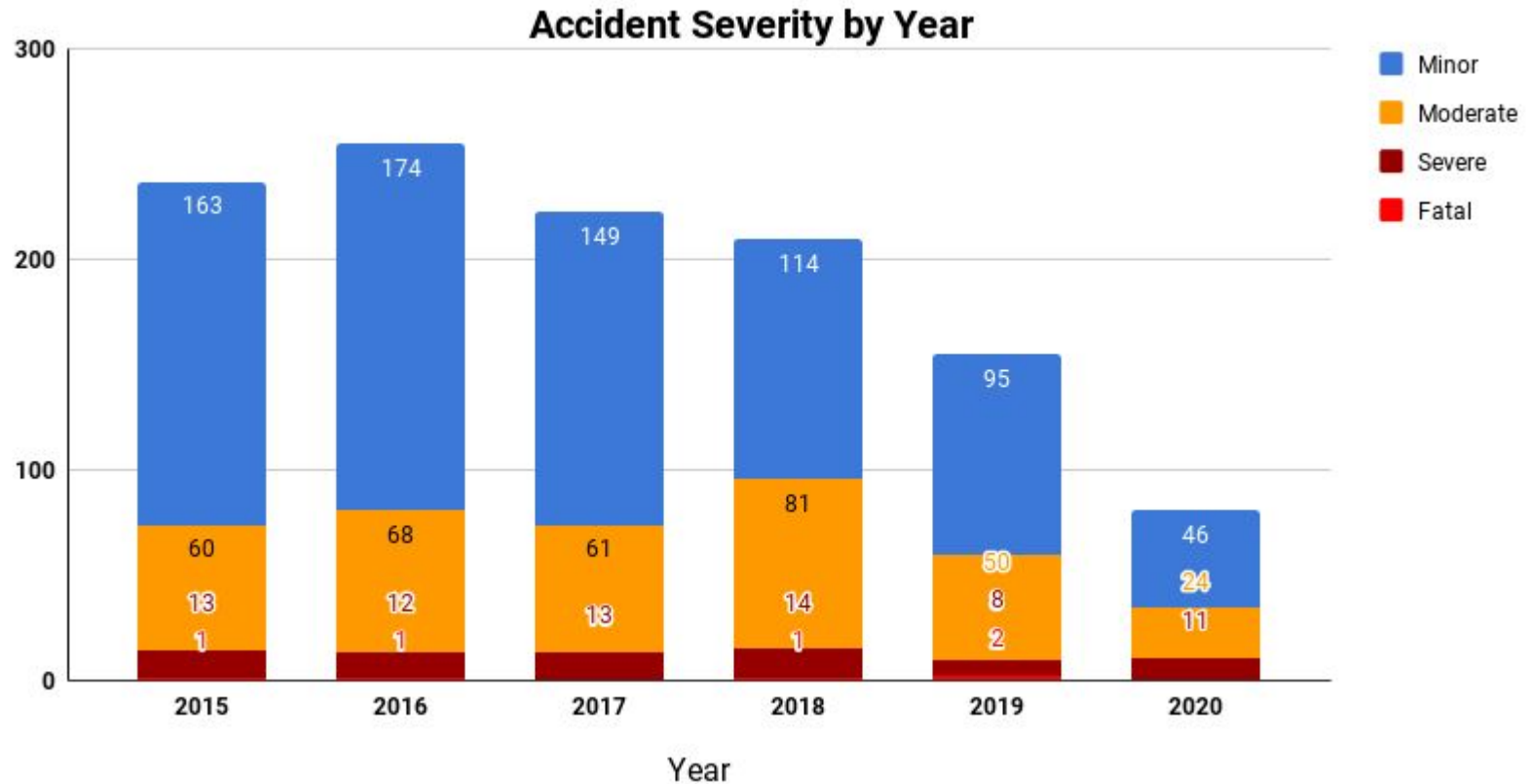


All Collisions by Type

Percentage of All Accidents by Type



All Collisions Severity by Year



Cupertino Pedestrian Collisions by Street

Street Name	Crashes
Stevens Creek Boulevard	14
De Anza Boulevard	13
Stelling Road	6
Homestead Road	5
Finch Avenue	3
McClellan Road	3
Bollinger Road	2

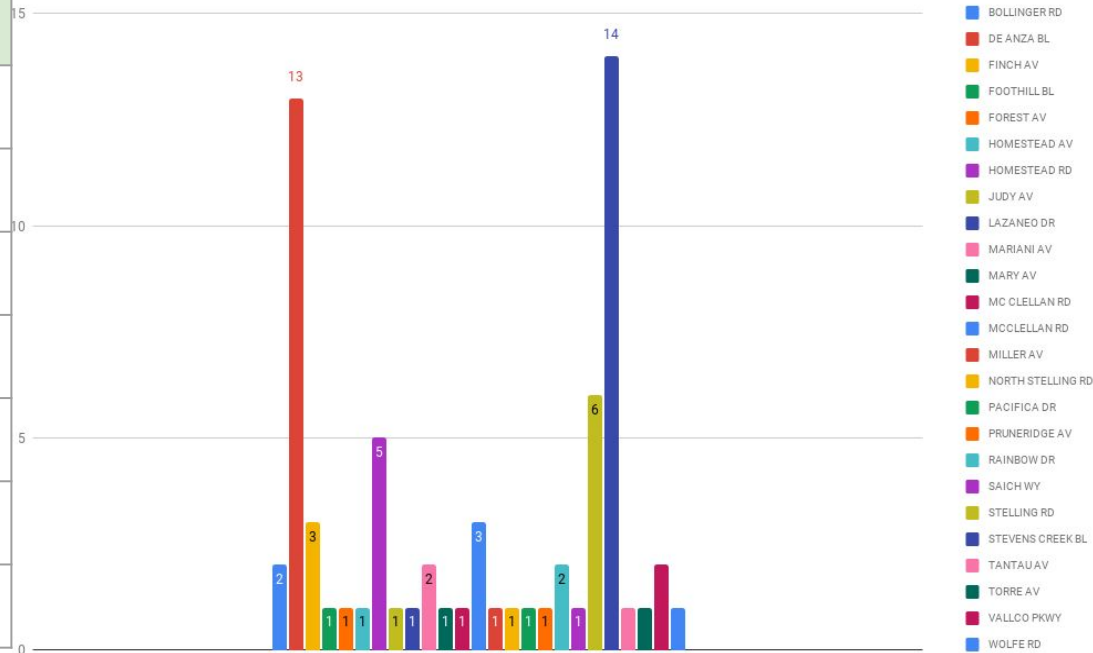
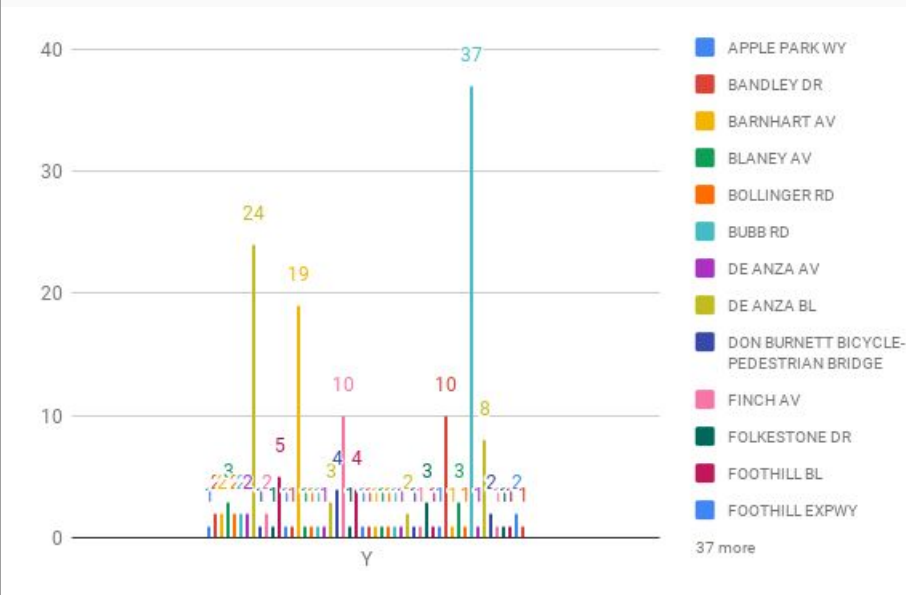


Table 6. Most frequent pedestrian collisions by Primary Street

Cupertino Bicycle Collisions by Street

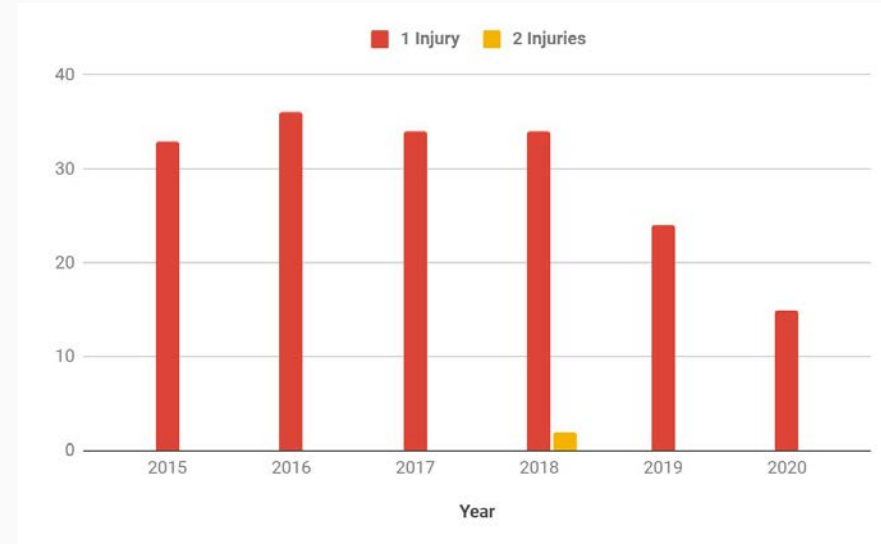
Street Name	Crashes
Stevens Creek Boulevard	37
De Anza Boulevard	24
Homestead Road	19
Stelling Road	10
McClellan Road	10
Tantau Avenue	8

- Most crashes occur on major streets



Bicycle Collision Data

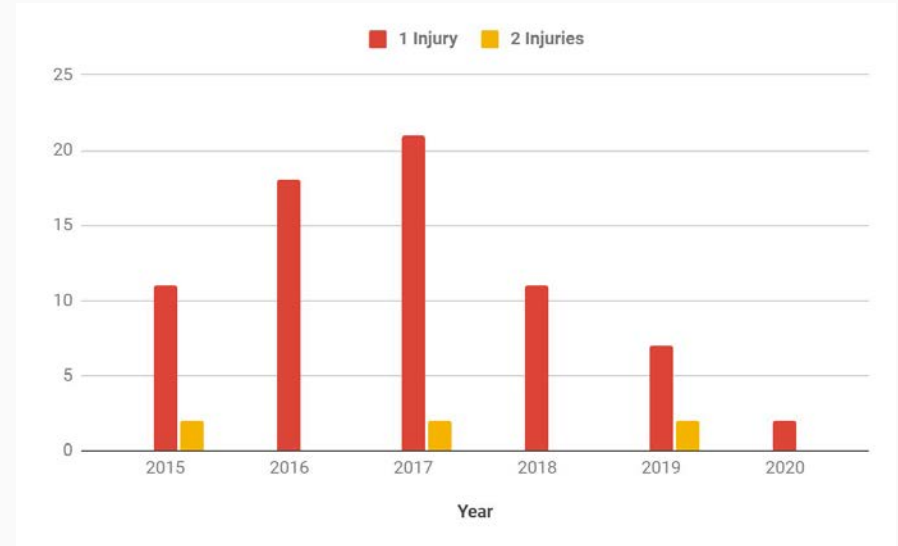
Year	Total Bicycle Collisions	1 Injury per incident	2 Injuries per incident
2015	11	11	0
2016	15	15	0
2017	15	15	0
2018	17	15	2
2019	8	8	0
2020	4	4	0
Total	70	68	2



*No Fatalities Recorded in Data.

Pedestrian Collision Data

Year	Total Pedestrian Incidents	1 Injury per incident	2 Injuries per incident
2015	13	2	11
2016	18	0	18
2017	23	2	21
2018	11	0	11
2019	9	2	7
2020	2	0	2
Total	76	6	70



*2 Fatalities

Bicycle Collision Data: Percentages

Type Of Collision	Number of Collisions	Percentage of Total Collisions
Head-On	1	3.23%
Sideswipe	2	1.82%
Rear End	3	0.59%
Broadside	10	5.62%
Hit Object	5	4.59%
Overtaken	6	17.14%
Vehicle/Pedestrian	2	2.30%
Other*	40	39.60%

* Type not listed

Pedestrian Collisions Data: Percentages

Type Of Incident	Number of Incidents	Percentage of Total Incidents
Head-On	0	0%
Sideswipe	0	0%
Rear End	0	0%
Broadside	0	0%
Hit Object	0	0%
Overturned	0	0%
Vehicle/Pedestrian	20	95.24
Other*	1	4.76%

* Type not listed

Highest Collisions By Location

- **Intersections**

- Stevens Creek(63)
- De Anza(45)
- Homestead(19)
- Wolfe(16)
- Bollinger(12)

- **Streets**

- Stevens Creek(142)
- De Anza(111),
- Homestead(55),
- Stelling(40),
- Wolfe(38),
- Bollinger(27)

- **Highways**

- I280S/B(126)
- I280N/B(98)

Conclusions

High Risk Corridors from the Previous Master Plan

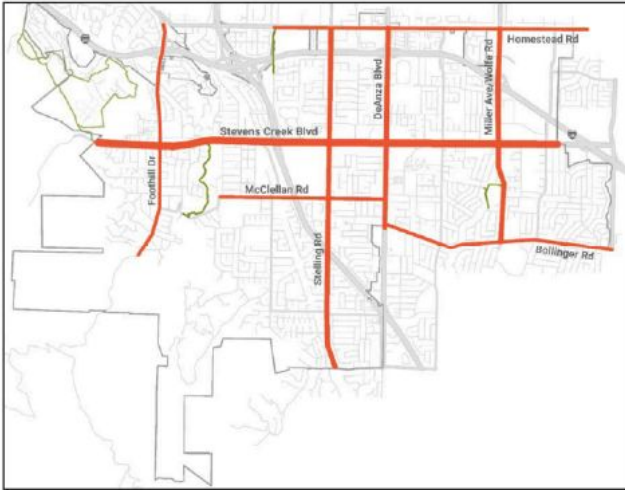


Figure 14. High-injury corridors: From 2005 to 2014, 71 percent of pedestrian injury crashes occurred on eight corridors.

Conclusions from This Analysis

- The three corridors with the **highest number** of reported collisions(Bicycles and Pedestrian) were
 - Stevens Creek Boulevard (51)
 - De Anza Boulevard(37)
 - Homestead Road (24).
- Stevens Creek and De Anza Boulevard both have **higher volumes of auto traffic and vehicle speeds** since they are larger main roads.
- **Stelling Road is also a major corridor** through Cupertino and prone to higher incidents(16).

Next Steps

- Add other vehicle types
- Sort by demographic
- Further clarification on accident severity
- Collision Cause(DUI, Reckless Driving, etc.)

References

- [Santa Clara County Police Dept.](#)
- [SWITRS Website](#)
- [2016 Bike Transportation Plan](#)
- [2018 Pedestrian Transportation Plan](#)

VTA BPAC Report

For Jan 13, 2021 meeting

Erik Lindskog

VTA Staff Report

- Darcy Paul is now on the VTA board representing the West Valley Cities
- Caltrans Pedestrian Plan for the Bay Area (District 4)
 - Main link: <https://www.catplan.org/d4-draftPlan>
 - District-4 link: <https://www.catplan.org/district-4>
 - Open for public review until Feb 5, 2021.
- Caltrans Bicycle Highway Study
 - Purpose is to understand where bike highways can be installed along state highways
 - Survey link open for 6-8 weeks: <https://sta.ca.gov/bike-highway-study-website-survey-launch/>

VTA Board Governance Process Assessment

- 'RSM' (A consulting firm maybe?) recommendations included deleting the VTA BPAC
- However, the Board Enhancement Committee did not forward this recommendation to the Governance & Audit Committee (G&A).
- Next step is for G&A to forward recommendations to the VTA board.
- Still to be evaluated:
 - Consolidation of standing committees
- Process is expected to continue until mid 2021.

Election of VTA BPAC Chair and Vice Chair

- Elected
 - Chair: Robert Neff (Palo Alto)
 - Vice chair: Stacy Banerjee (Los Altos Hills)

2016 Measure B Bicycle & Pedestrian Education & Encouragement FY2021 Program

Update on the 2016 Measure B Bicycle & Pedestrian Education & Encouragement (E&E) program

Projects:

2016 Measure B Bicycle & Pedestrian Education & Encouragement Program FY2021 Projects

12.a

Safe Routes to School (SRTS)

Cupertino, Gilroy, Los Gatos, Monte Sereno, Morgan Hill, Mountain View, San Jose, Saratoga, Sunnyvale, County & VTA

- SRTS events: pop-up demonstration, walking school bus, Walk n' Roll days, in-class bike/pedestrian education, parent train the trainer, helmet fittings
- SRTS individual school program and activity plans development
- Pre-K Education opportunities: Learn to Ride Balance Bikes
- Grade 1: Advanced Pedestrian Training
- Grade 2: Scooter Training and Traffic Understanding
- Grade 3 & 4: Helmet Safety Training
- Grade 4: Bike Rodeo
- Grade 5 & 6: Middle School Cycling Proficiency
- Grade 7 & 8: Train the Trainer on Helmet Safety
- High School: Implementation into Life Fitness Course
- SRTS teacher education, public meetings, online engagement & outreach Survey
- SRTS outreach & education – standalone website, plans, maps, brochures and incentives

Community Engagement / Safety Education Programs

Cupertino, Gilroy, Los Gatos, Monte Sereno, Palo Alto, Sunnyvale, County & VTA

- Mobility Information Kiosk E-Bike (M.I.K.E) Community Engagement Pilot at parks, schools and other public space.
- Adult bicycle education classes
- Adult education classes videos
- Licensed Cycling Instructor training for community members
- Vision Zero Safety Education Campaign
- Bike/walk counts at specific hot spots
- Pedestrian safety: provide expanded crossing guard hours at schools

Marketing and Distribution of Incentives

Morgan Hill, San Jose, Sunnyvale, County & VTA

- Creation and distribution of marketing materials and incentives, such as citywide/countywide maps, bike helmets, bike lights, and/or reflective safety items.
- Development of a Bicycle Friendly Business Program.

Special Bicycle/Pedestrian Events

Cupertino, Gilroy, Morgan Hill, San Jose

- Bike valet at downtown weekly live events during summer
- Bike to Work Day
- Bike to School Day
- Open Streets Events
- Fall Bike Fests: develop bike challenges and purchase incentives
- Family Fun Bike Night Event

2016 Measure B Bicycle & Pedestrian Education & Encouragement Program

2016 Measure B Bicycle & Pedestrian Education & Encouragement Program Project Evaluation Metrics

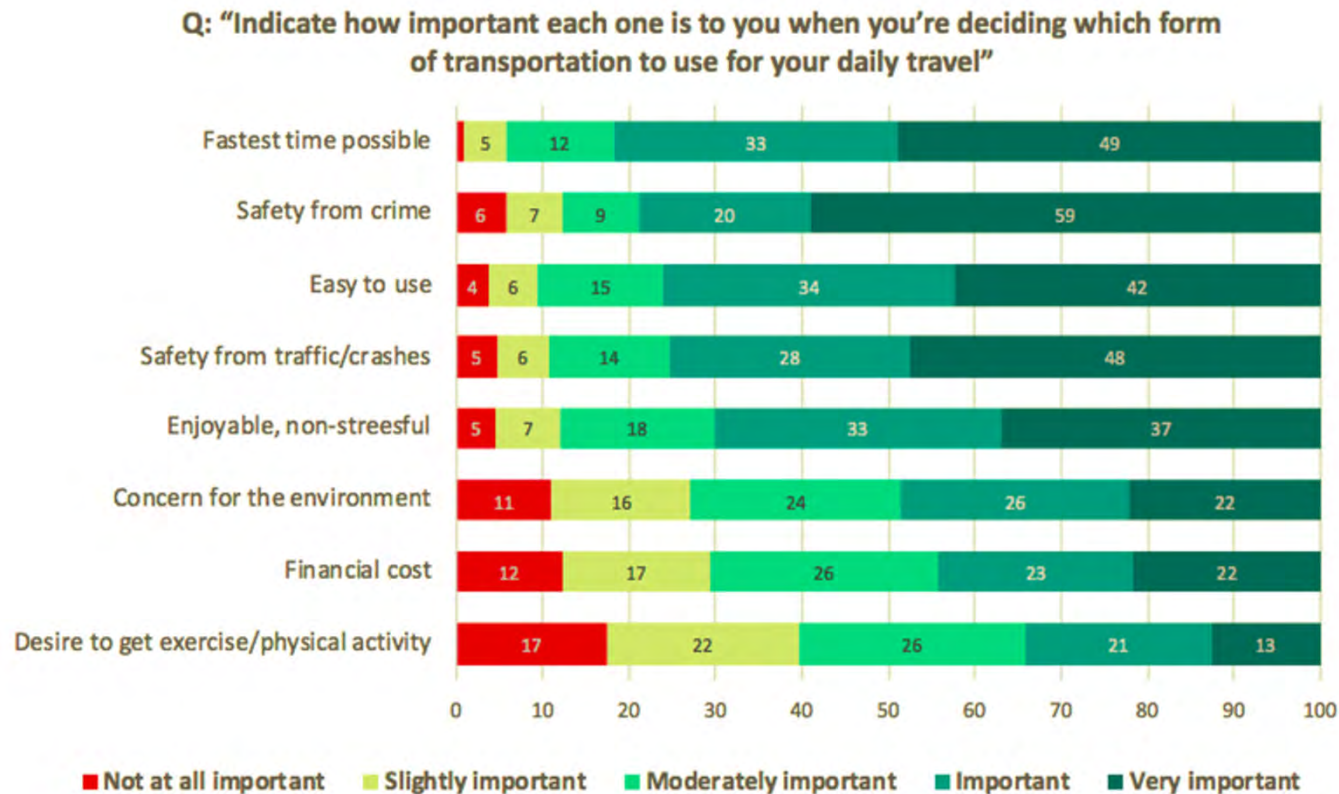
Member Agencies must propose at least one metric per project based on the project goal(s).
The 2016 Measure B Program Office identified four main categories of proposed metrics:

Metrics:

1. Project Reach	<ul style="list-style-type: none">• Number of participants/volunteers• Number of schools/students/teachers/parents/staff/business participating• Number of views or downloads on the map/website/videos/flyers• Number of courses offered• Number of campaign goals and activities developed• Number of survey respondents• Number of materials/incentives distributed
2. Behavioral or Attitude Change	<ul style="list-style-type: none">• Number/rates of parents/caregivers who would allow their students to actively commute to school, by school.• Before/after data of respondents' feedback on the safety education campaign• Participants have a more positive opinion of bicycling and feel more confident bicycling after taking courses• Pop-up survey from map asking viewers about how they use the map, bicycling habits, and if the map changed their behavior.• Rates of participants reporting 60 minutes of exercise or more and % of bicyclists, measured by post-event surveys• Collision analysis reporting
3. Mode Shift	<ul style="list-style-type: none">• Rates of students walking and biking to school• Number of bikes parked and percentage change over time• Number of pedestrians/cyclists counted at hot spots/nearby school intersections• Survey results of commuting mode change
4. Equity	<ul style="list-style-type: none">• Number of SRTS activities offered per school• Number of identified pick-up/drop-off locations or routes designed per school• Number of visits/events per school/area• Number of written testimonials letters of appreciation from institutional and school leaders

Surveying Silicon Valley on Cycling, Travel Behavior, and Travel Attitudes 1(2)

Some highlights
of the content:



Surveying Silicon Valley on Cycling, Travel Behavior, and Travel Attitudes 2(2)

Some highlights
of the content:

