Date: 2/14/18
Submitted in TRAN Committee
Council File No: 17-1137
Item No.: 9
Deputy: Adam R. Lid

VISION ZERO

LOS ANGELES | 2015-2025

VISION ZERO DATA PRESENTATION TO COUNCIL TRANSPORTATION COMMITTEE

LOS ANGELES DEPARTMENT OF TRANSPORTATION

FEBRUARY 14, 2018

Outline

Our Vision Zero Data...

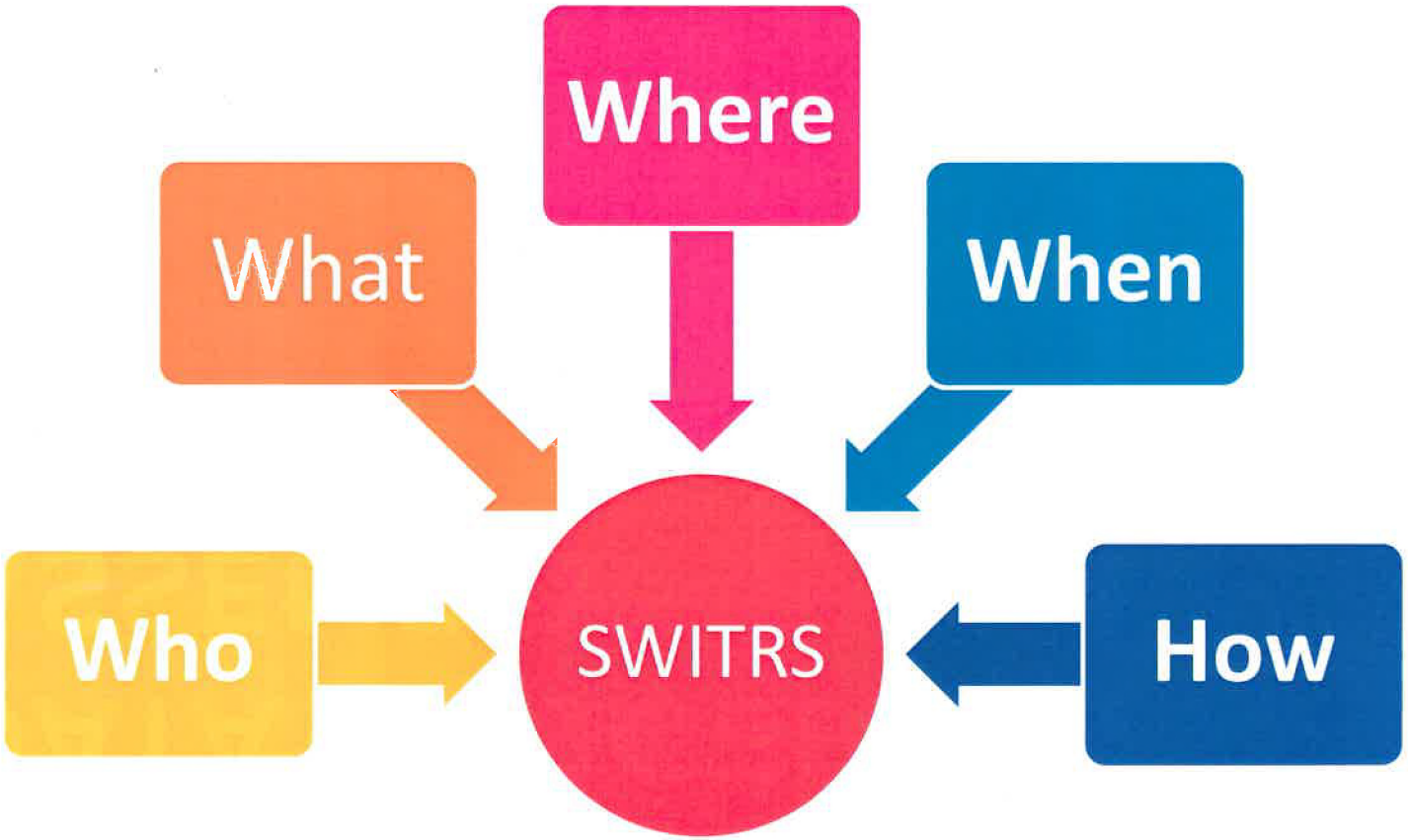
- Is **comprehensive**
- Is **public**
- Informs **where** we do our work
- Guides **how** we design

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DATA PROCESS & ASSEMBLY

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Statewide Integrated Traffic Records System (SWITRS)



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Current Collision Data Process – 7-9 Months

LAPD

Fill out Form 555

CHP

Prepare SWITRS Tables (Process / Organize / Digitize Data)

LADOT

Clean data*
(1 full-time staff)

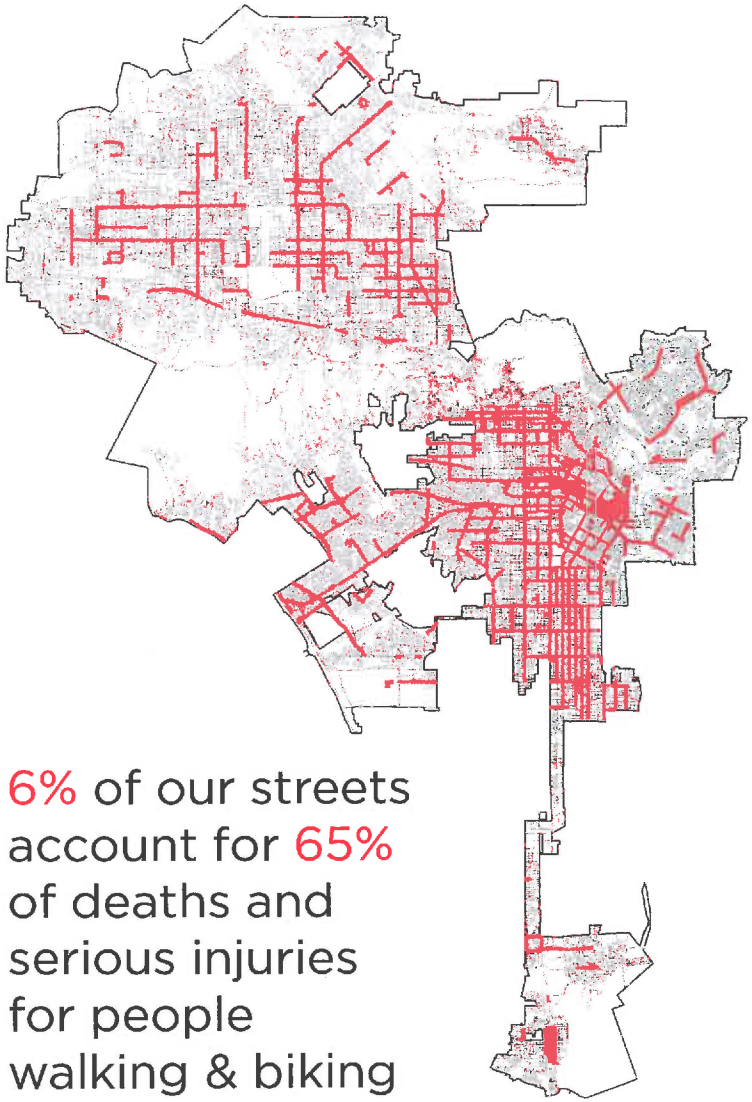
Error Types
1. No X,Y coordinates
2. Missing data
3. Contradicting data

LADOT

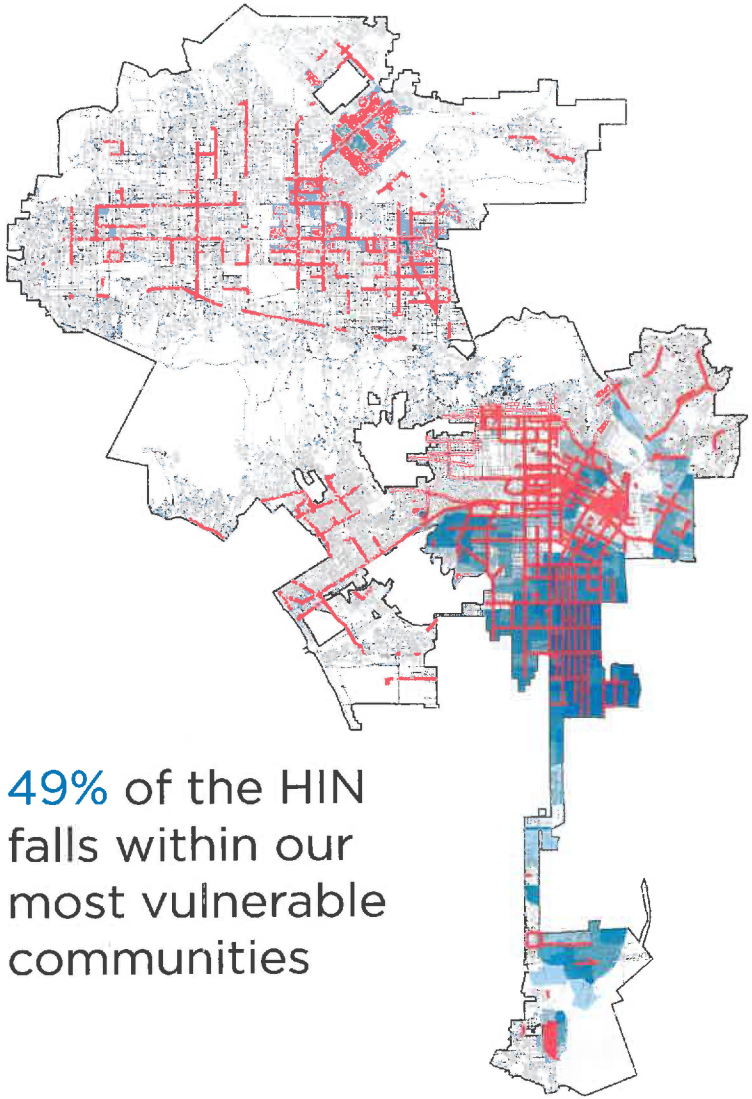
Use Data to Inform Engineering

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HIGH INJURY NETWORK (HIN)



6% of our streets account for 65% of deaths and serious injuries for people walking & biking

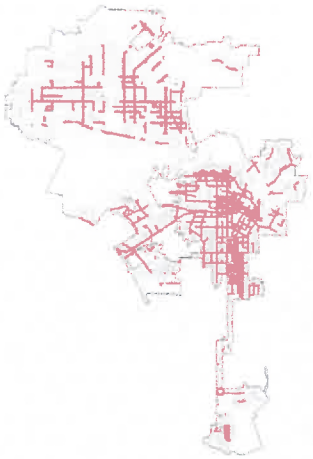


49% of the HIN falls within our most vulnerable communities

Source: 2009 – 2013 SWITRS

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Adding Infrastructure Data

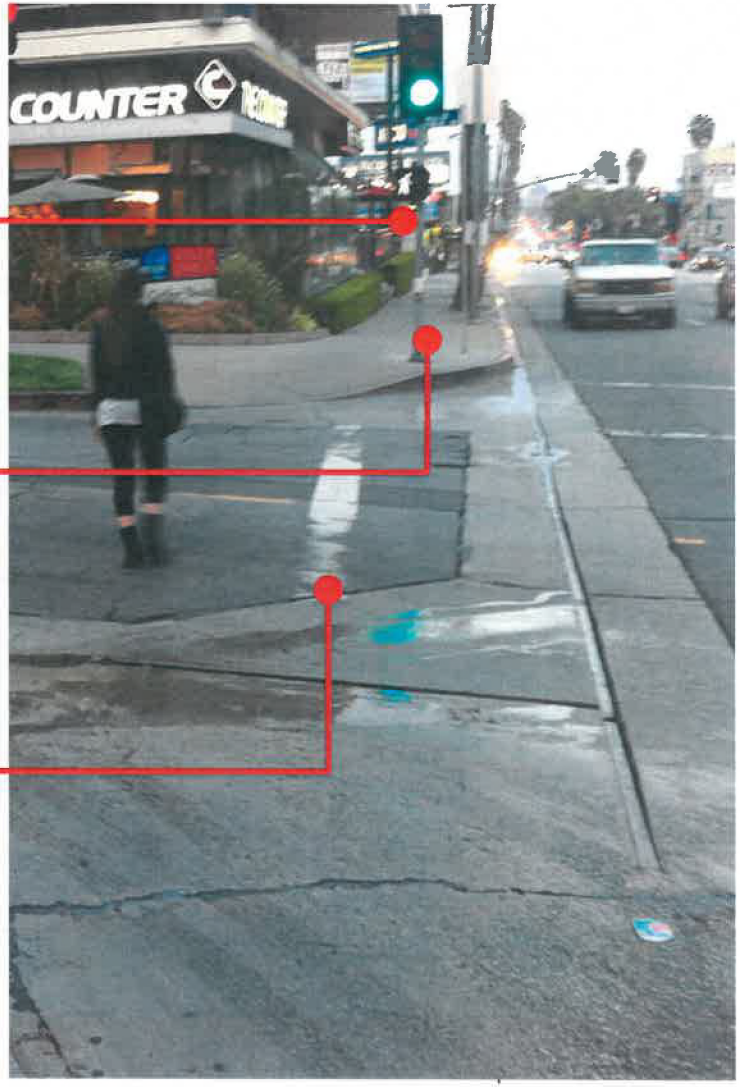


Pedestrian Countdown

+

Signalized/Non-signalized Intersection

Crosswalk Markings



Publishing the Database





LADOT has published all the collision and infrastructure data used in the Vision Zero Technical Collision Analysis to http://visionzero.geohub.lacity.org

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Data Process Summary

- High-Injury Network developed using industry best practices
  - 5-years of collision data
  - Network analysis
  - Prioritize over-represented population
- Develop infrastructure asset database
- Regularly publish and update data

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HOW DO WE USE THIS DATA TO HELP DEVELOP A WORKPLAN?

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LOCATION PRIORITIZATION

Potential Location Priorities

- Crash Severity
- Dangerous Behavior
- Social Equity
- Geographic Equality
- Party Vulnerability
- Low-Cost/ Low-Complexity

In February and March 2016, LADOT met with Vision Zero public stakeholders (including the Vision Zero Task Force, council office staff, the Vision Zero Alliance, and more) to solicit input on potential factors we should consider to develop our year one work plan.

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LOCATION PRIORITIZATION

- **Vision Zero Alliance Feedback**
- **62 In-Person Surveys**
- **522 Online Surveys**

Location Priority	Combined Weighted Score
Crash Severity	0.478
Party Vulnerability	0.361
Social Equity	0.333
Dangerous Behavior	0.303
Geographic Equality	0.273
Low Cost / Low Complexity	0.252

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Developing a Work Plan – Priority Corridors

Intersection Score =

- Fatality (x1.5) +
- Severe Injury +
- Child or Senior* +
- Target Community**

*0 or 1 if a child or senior was present at any KSI collision
**0 or 1 if the location was in a target community

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Developing a Work Plan – Priority Corridors

Intersection Score =

Fatality (x1.5) +

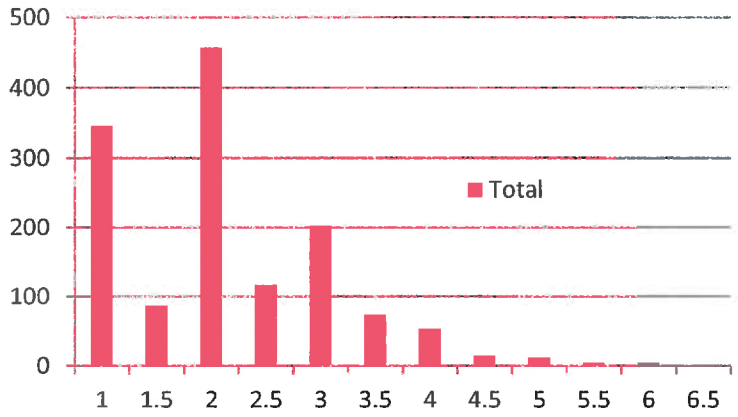
Severe Injury +

Child or Senior* +

Target Community**

*0 or 1 if a child or senior was present at any KSI collision
**0 or 1 if the location was in a target community

Intersection Score Distribution



- Among intersections with at least one KSI
- Highest score = 6.5 (two intersections)

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Developing a Work Plan – Priority Corridors

Intersection Score =

Fatality (x1.5) +

Severe Injury +

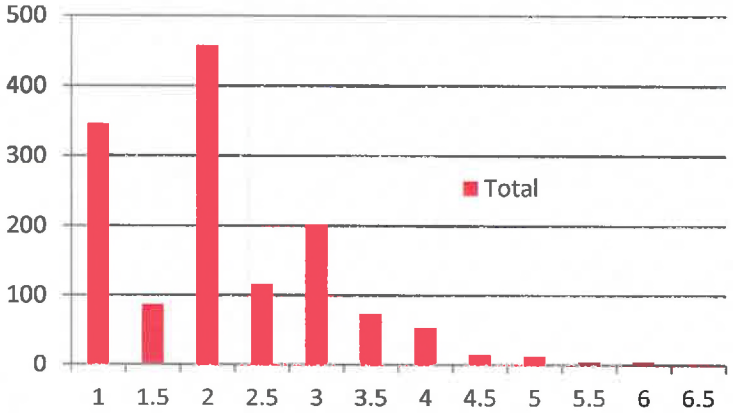
Child or Senior* +

Target Community**

*0 or 1 if a child or senior was present at any KSI collision

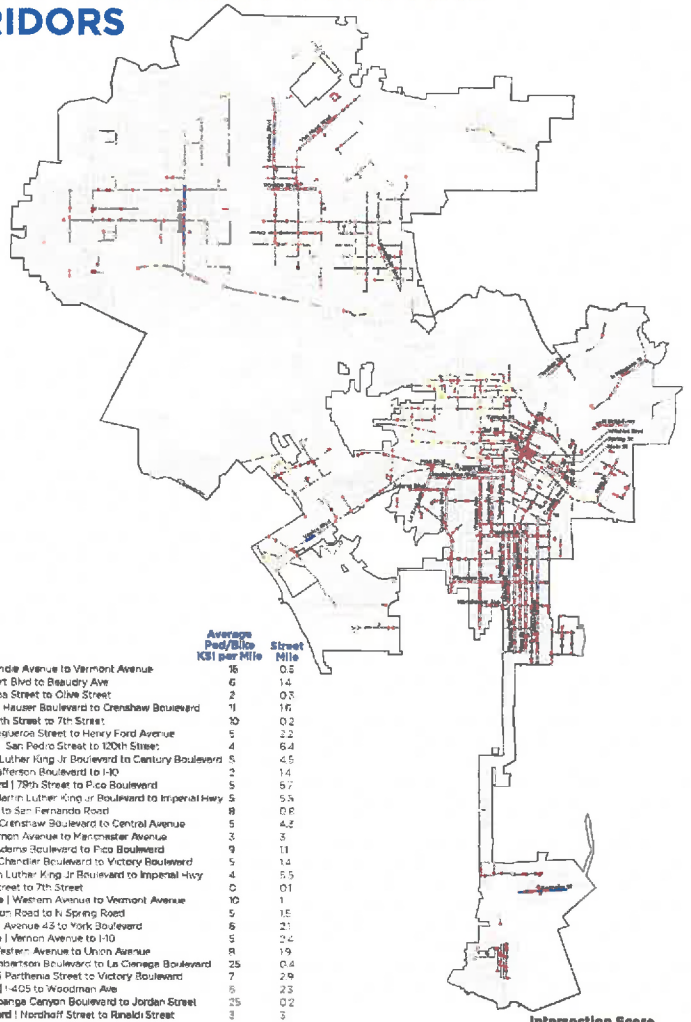
**0 or 1 if the location was in a target community

Intersection Score Distribution



- Among intersections with at least one KSI
- Highest score = 6.5 (two intersections)

HIGH INJURY NETWORK
PRIORITY INTERSECTIONS AND CORRIDORS



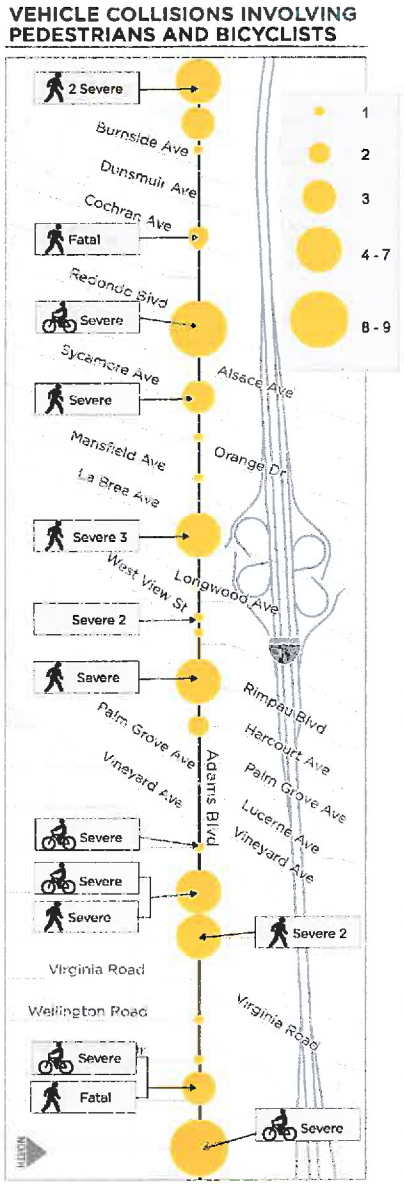
Priority Corridor (alphabetical order)	Average Ped/Bike KSI per Mile	Street Mile
1 **3rd Street** : Normandie Avenue to Vermont Avenue	16	0.5
2 **6th Street** : Rampart Blvd to Beaudry Ave	6	1.4
3 **7th Street**	Figueroa Street to Olive Street	2	0.3
4 **Adams Boulevard**	Hauser Boulevard to Crenshaw Boulevard	11	1.6
5 **Alvarado Street**	6th Street to 7th Street	10	0.2
6 **Anaheim Street** : Figueroa Street to Henry Ford Avenue	5	2.2
7 **Avalon Boulevard**	San Pedro Street to 120th Street	4	6.4
8 **Broadway**	Martin Luther King Jr Boulevard to Century Boulevard	5	4.5
9 **Central Avenue**	Jefferson Boulevard to I-10	2	1.4
10 **Crenshaw Boulevard**	79th Street to Pico Boulevard	5	5.7
11 **Figueroa Street**	Martin Luther King Jr Boulevard to Imperial Hwy	5	5.5
12 **Fletcher Drive**	I-5 to San Fernando Road	8	0.8
13 **Florence Avenue** : Crenshaw Boulevard to Central Avenue	5	4.2
14 **Hoover Street**	Vernon Avenue to Manchester Avenue	3	3
15 **La Brea Avenue**	Adams Boulevard to Pico Boulevard	9	1.1
16 **Lankershim Blvd**	Chandler Boulevard to Victory Boulevard	5	1.4
17 **Main Street**	Martin Luther King Jr Boulevard to Imperial Hwy	4	5.5
18 **Main Street**	6th Street to 7th Street	0	0.1
19 **Manchester Avenue**	Western Avenue to Vermont Avenue	10	1
20 **N Broadway**	Mission Road to N Spring Road	5	1.5
21 **N Figueroa Street**	Avenue 43 to York Boulevard	6	2.1
22 **Normandie Avenue**	Vernon Avenue to I-10	5	2.4
23 **Pico Boulevard**	Western Avenue to Union Avenue	8	1.9
24 **Pico Boulevard**	Robertson Boulevard to La Cienega Boulevard	25	0.4
25 **Reseda Boulevard**	Parthenia Street to Victory Boulevard	7	2.9
26 **Roscoe Boulevard**	I-405 to Woodman Ave	6	2.3
27 **Saticoy Street**	Topanga Canyon Boulevard to Jordan Street	25	0.2
28 **Sepulveda Boulevard**	Nordhoff Street to Rinaldi Street	3	3
29 **Soto Street**	Wabash Avenue to 8th Street	4	1.9
30 **Spring Street**	Temple Street to 9th Street	5	1.2
31 **Temple Street**	Beverly Boulevard to Beaudry Avenue	8	2.3
32 **Van Nuys Boulevard**	Beachy Avenue to San Fernando Road	5	1.5
33 **Venice Boulevard**	Beethoven Street to Inglewood Boulevard	1	0.8
34 **Venice Boulevard**	Arlington Avenue to Figueroa Street	4	2.8
35 **Vermont Avenue**	Pico Boulevard to Adams Boulevard	7	1
36 **Vermont Avenue**	Gage Avenue to Vernon Avenue	8	1.8
37 **Vernon Avenue**	Western Avenue to Central Avenue	6	3
38 **Washington Boulevard**	La Brea Avenue to Vermont Avenue	6	3.2
39 **Western Avenue**	Century Boulevard to Washington Boulevard	9	6.5
40 **Wilshire Boulevard**	Rampart Boulevard to Valencia Street	8	0.9

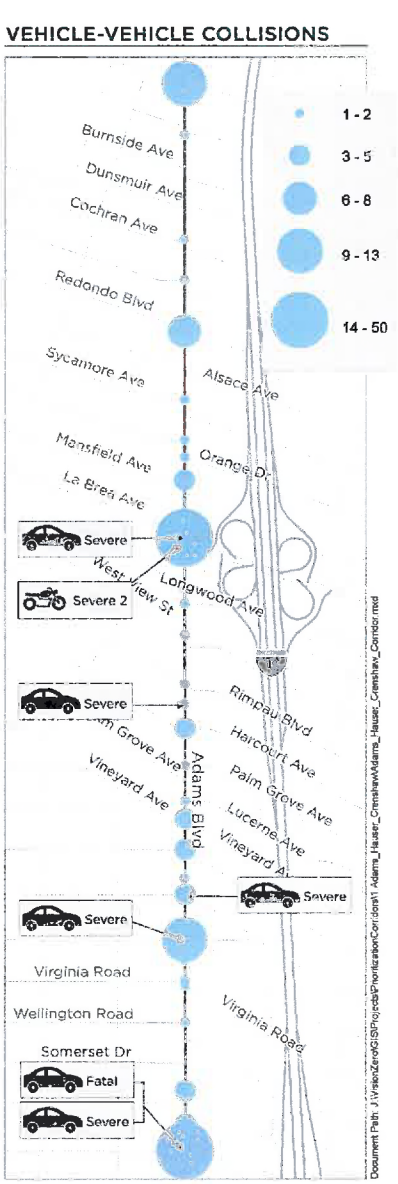
Corridor Applications – Engineering Design





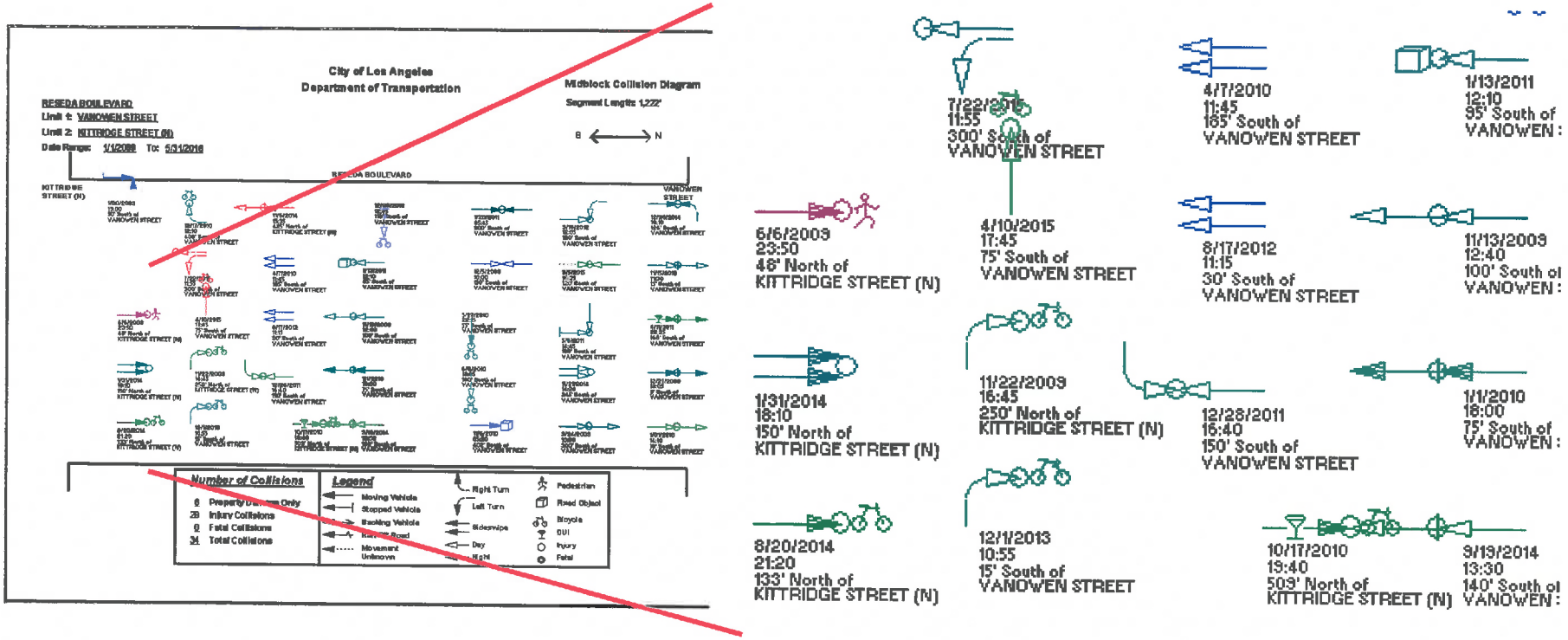
HAUSER BLVD TO CRENSHAW BLVD





Corridor Example: Reseda Bl

Collision Diagrams are Used to Identify Correctable Collision Patterns



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Reseda BI: Pair Profiles with Countermeasures

Profile	Proposed Countermeasure
• Two fatal left-turn vehicle-to-vehicle collisions within signalized intersections	• Install Protected Only Left-Turn Phase (CRF 99% reduction in left-turn collisions)
• Vehicle-to-bicycle collisions with bicycles traveling on the wrong side of the road	• Install additional bike lane pavement markings and bike sharrows at midblock locations (reduction in riding against flow of traffic)
• Left-turn and right-turn vehicle-to-pedestrian collisions within signalized intersections	• Install right (/left) turn vehicles Yield-to-Ped signs and install LPI where feasible (CRF 5-59% reduction in ped collisions)

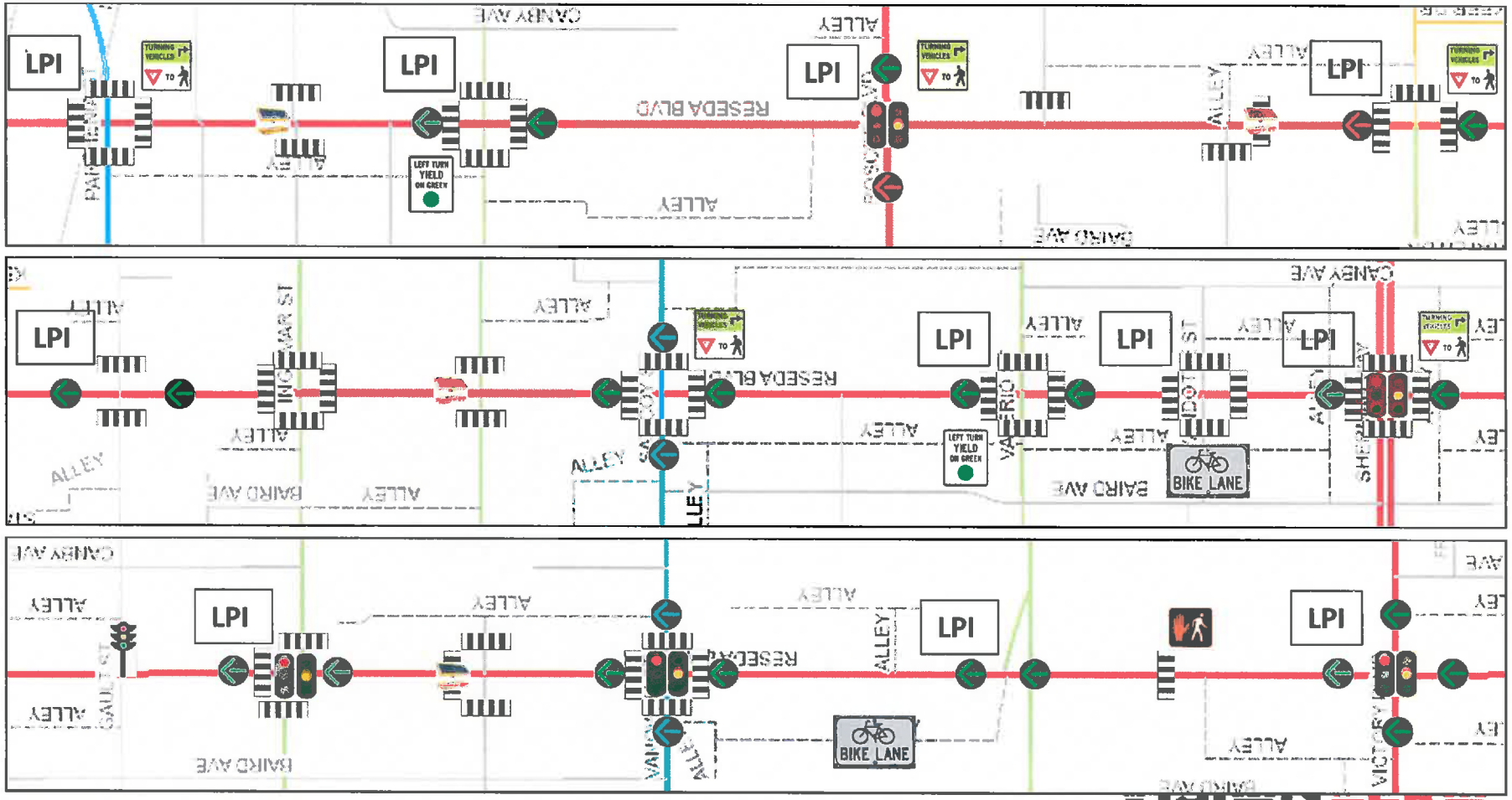
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Reseda Bl: Overview of Proposed Countermeasures

Continental Crosswalk | Increased Yellow & All-Red | New Signal | New Bike Lane

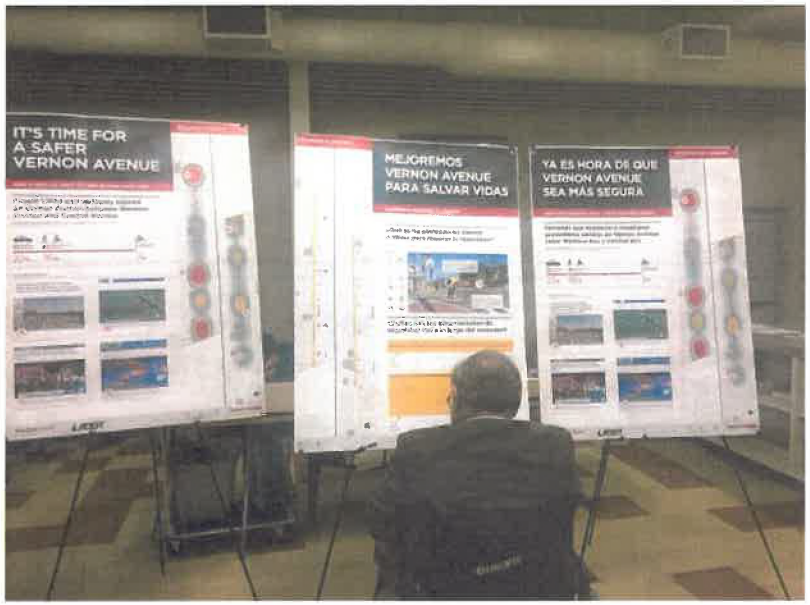
Left Turn Phase | LPI | LPI | RT Yield to Ped.

RRFB's | APWD | LT Yield to Ped.

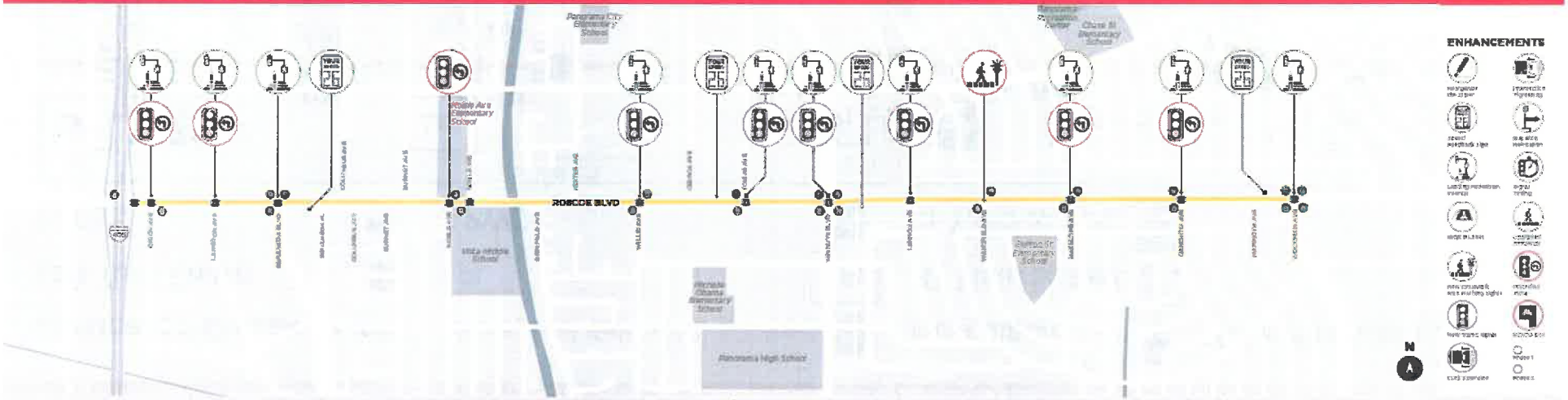


PROJECT-BASED ENGAGEMENT & COMMUNITY FEEDBACK





PLANNED ENHANCEMENTS



Workplan Development Summary

- Location prioritization methodology based on public vetting process
- Priority Corridors are a subset of High-Injury Network
  - 90 miles vs 460 miles
- Safety improvements designed and installed in phases
  - Phase 1 – striping & paint
  - Phase 2 – signal improvements
  - Phase 3 - concrete

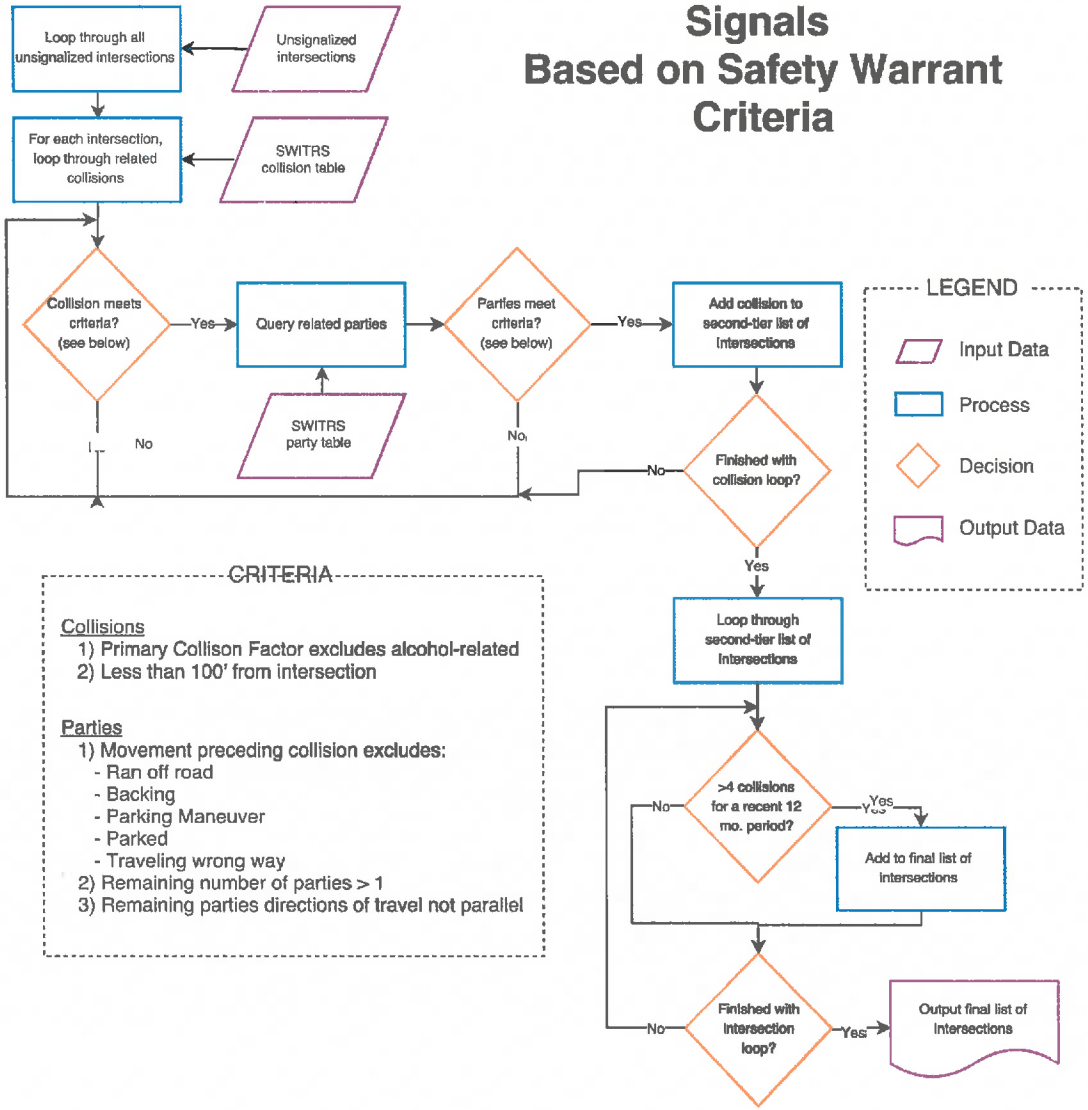
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EXAMPLE BIG DATA APPLICATION

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Signal Warrant Analysis

Citywide Identification of New Signals Based on Safety Warrant Criteria



CRITERIA

Collisions
1) Primary Collison Factor excludes alcohol-related
2) Less than 100' from intersection

Parties
1) Movement preceding collision excludes:
- Ran off road
- Backing
- Parking Maneuver
- Parked
- Traveling wrong way
2) Remaining number of parties > 1
3) Remaining parties directions of travel not parallel

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Big Data Applications

```
#### This script builds a table of the number of collisions involving L or U Turns (for each direction) ####

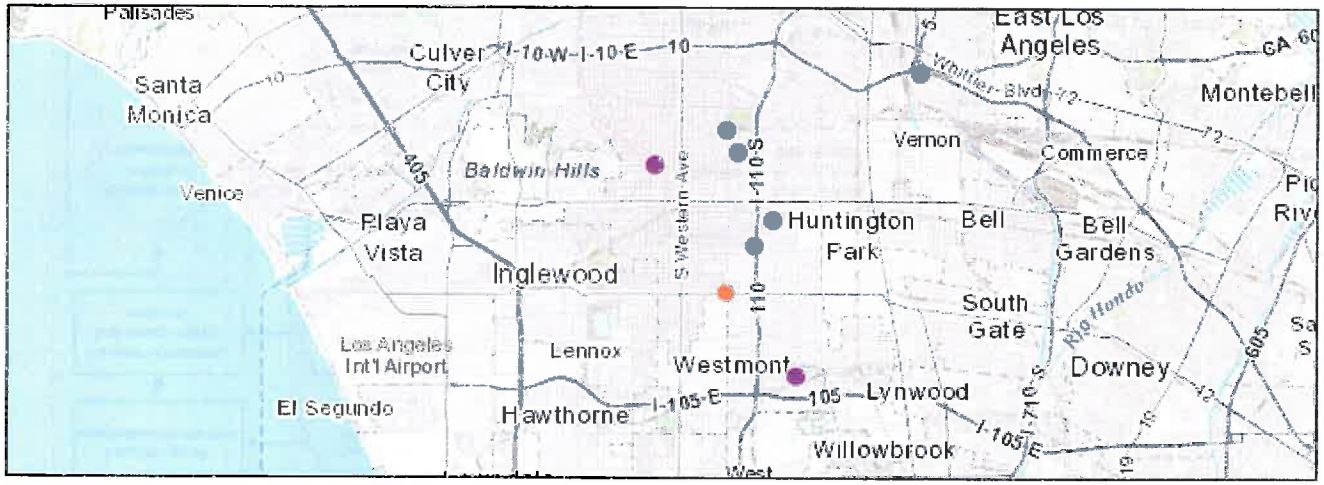
import arcpy
from arcpy import env

##### Setup workspace #####
env.workspace = "Z:/VisionZero/GIS/Data/OtherDOT_AnalysisProjects/MetroExpressLanes_Mar2016/MetroExpressLanesMar2016.gdb"
SigInt = "SigIntwithin3miBuffer"
Collisions = "Parties2013DriversUorLTurn"

##### Loop through the intersections & Count Collisions per Intersection #####

Collision_Table = []
print "Done"
int_fields = ["ASSETID","LTurn_N","LTurn_S","LTurn_E","LTurn_W","LTurn_None"]
collision_fields = ["Parties_DIR_OF_TRAVEL","SWITRS2009_to_2013_IntID"]
```

Data Analysis



Identified Intersections For Safety Upgrades

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Big Data Application Summary

- Transportation "Big Data" allows for proactive identification of safety needs
- More efficient use of LADOT engineer & design resources
- Programmatic application of safety countermeasures

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NEXT STEPS

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Next Steps

1. Publishing the Updated High-Injury Network with 2012-2016 data

2. LACDPH Analysis
   - Cost of Fatalities & Severe Injuries
   - Underreporting

3. Ongoing evaluation of project effectiveness

4. Ongoing coordination with State Transportation Agencies
   - LAPD Digital Records
   - CalSTA request to improve safety data and education efforts

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