

CITY OF LOS ANGELES
INTER-DEPARTMENTAL MEMORANDUM

Date: January 11, 2018

To: Honorable City Council
c/o City Clerk, Room 395
Attention: Honorable Mike Bonin, Chair, Transportation Committee

From: Seleta J. Reynolds,  General Manager
Department of Transportation

Subject: Vision Zero / Implementation Strategy for the Safety of the Traveling Public / Hazard Mitigation (Council File: 17-1137)

SUMMARY

In response to Council File 17-1137, the Los Angeles Department of Transportation (LADOT) provides the attached presentation on the High-Injury Network (HIN) and the methodology used to establish the network. The presentation includes background on LADOT's data validation process, collision analysis, safety counter-measures, and how LADOT is responding to and improving relevant data.

RECOMMENDATION

The Los Angeles Department of Transportation recommends that City Council receive and file this item.

BACKGROUND

In 2015, the City developed and announced the Vision Zero program, a set of data-backed policy strategies with the objective of reducing and eventually eliminating traffic fatalities.

On October 4 2017, Councilmembers Krekorian and Ryu introduced a motion to instruct the Department of Transportation to develop and report on the Vision Zero data analysis approach, data validation process, and project implementation strategy that reflects the City Council's goal of addressing all threats to the safety of the traveling public, whether the root causes are because of the design of infrastructure, its state of repair, or because of any other cause that has the potential to cause injury or death. The attached presentation includes background on LADOT's data validation process, collision analysis, safety counter-measures, and how LADOT is responding to and improving relevant data.

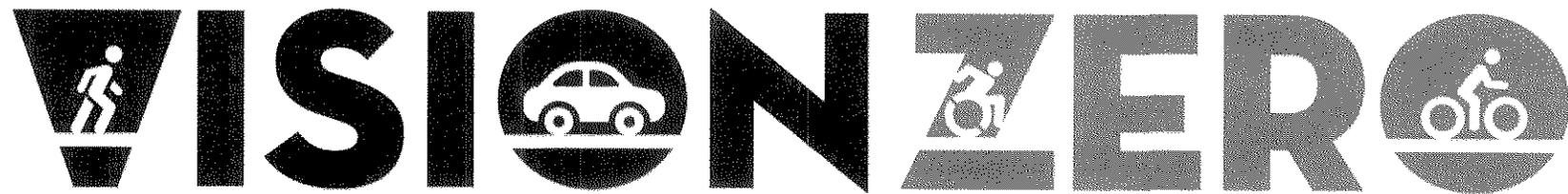
Further, LADOT was instructed to begin reporting on an annual basis with a set of proposed Vision Zero projects for consideration by the Council and for inclusion in the Mayor's proposed budget. LADOT will follow-up with a future report on the 2018 Vision Zero Action Plan and Progress Report.

FINANCIAL IMPACT

There is no anticipated fiscal impact to the City of Los Angeles due to this action.

SJR/NG/JC

Attachment



LOS ANGELES | 2015-2025

**VISION ZERO DATA PRESENTATION TO
COUNCIL TRANSPORTATION COMMITTEE**

LOS ANGELES DEPARTMENT OF TRANSPORTATION

FEBRUARY 14, 2018

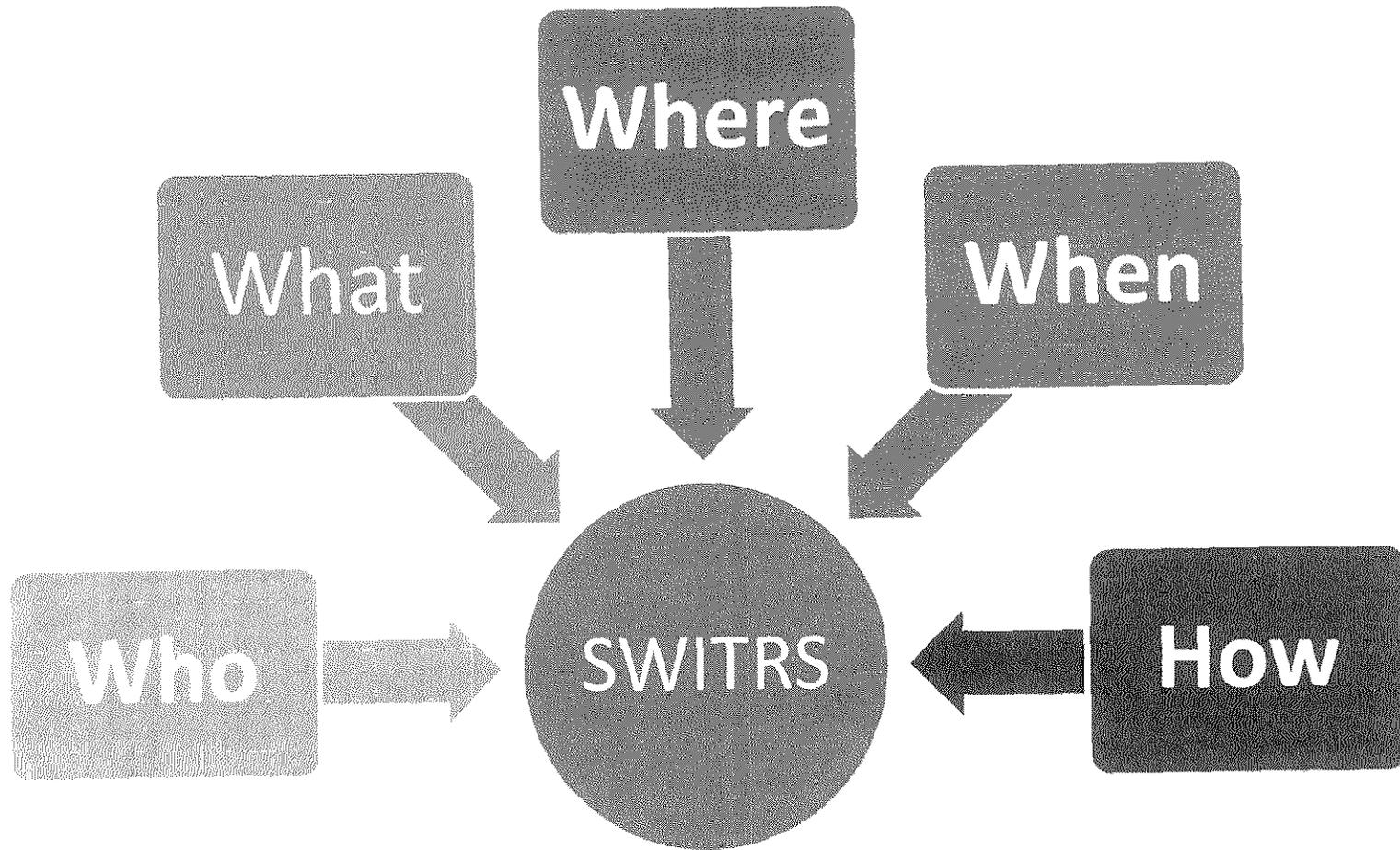


Our Vision Zero Data...

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

DATA PROCESS & ASSEMBLY

Statewide Integrated Traffic Records System (SWITRS)



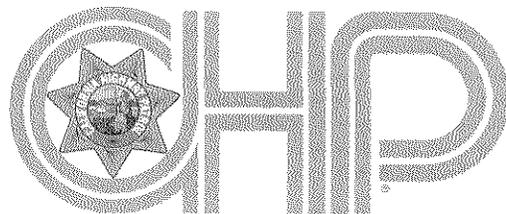
Current Collision Data Process - 7-9 Months



LAPD



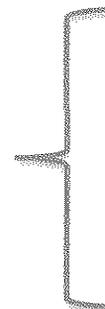
Fill out
Form 555



Prepare SWITRS Tables
(Process / Organize / Digitize
Data)



Clean data*
(2 full-time staff)



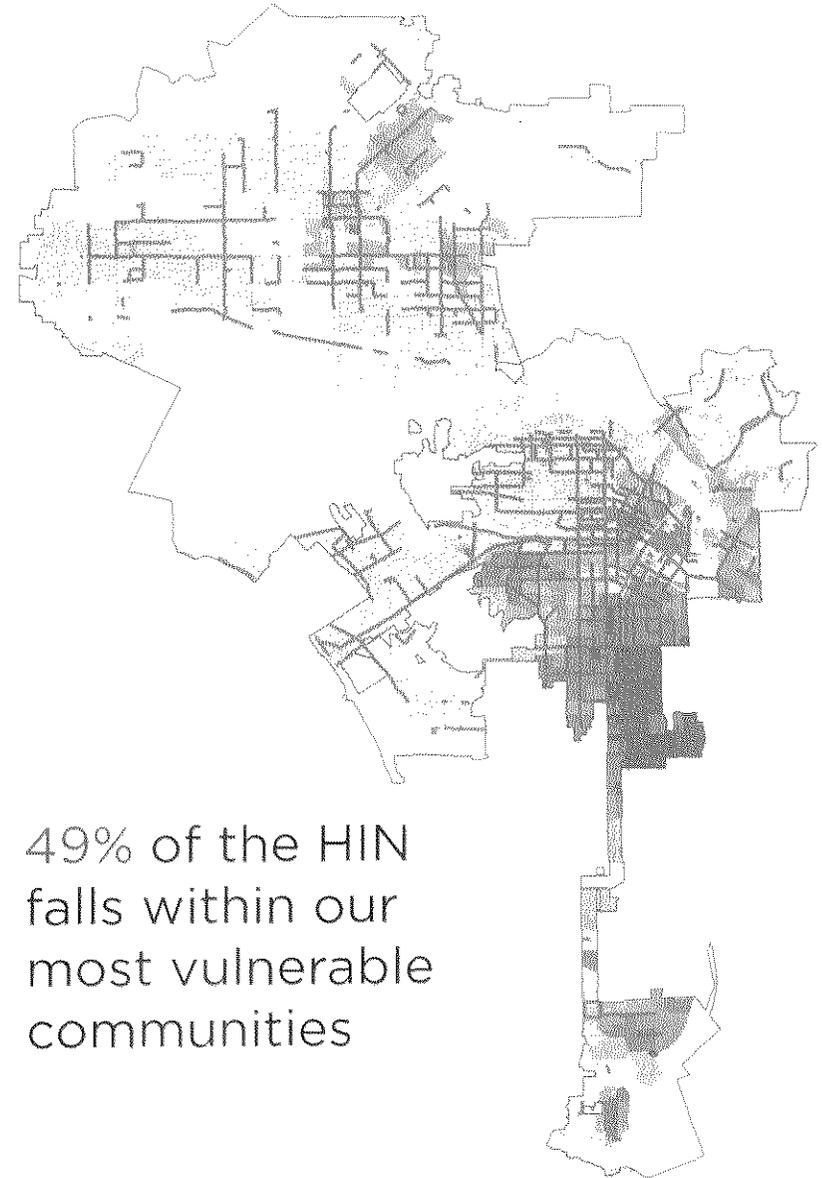
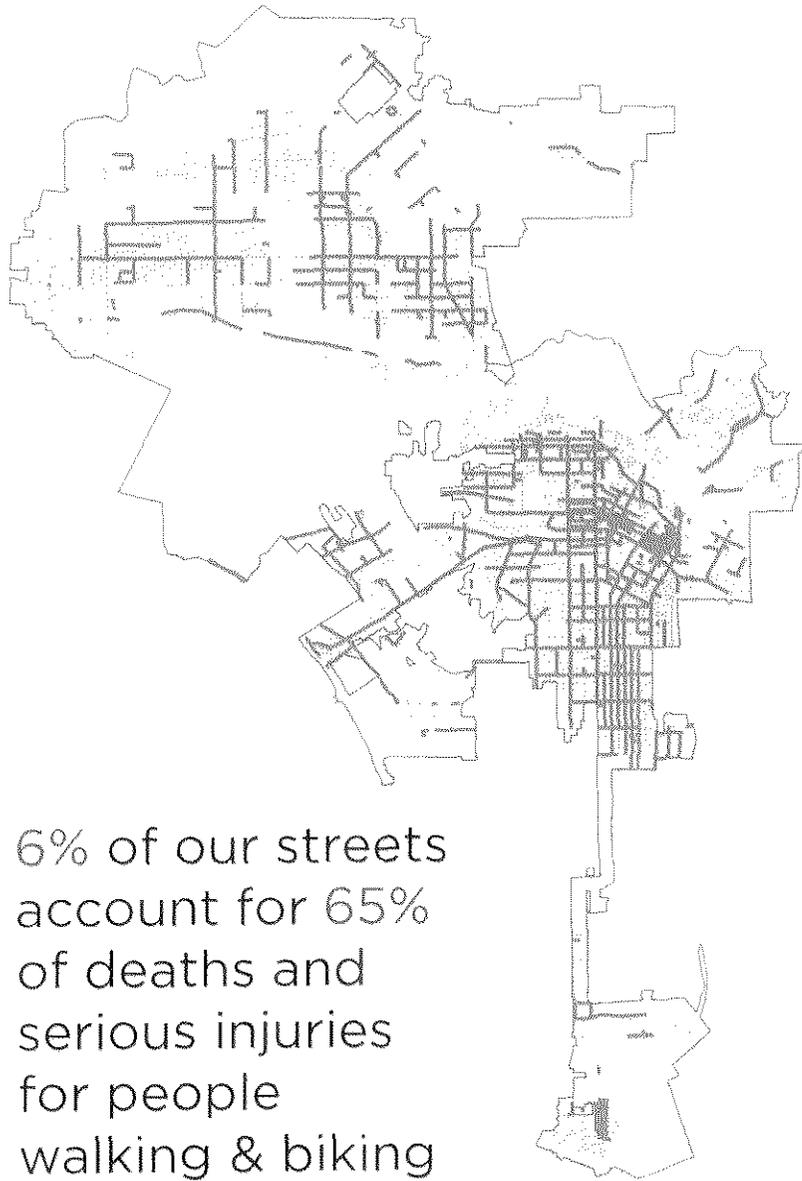
Error Types

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



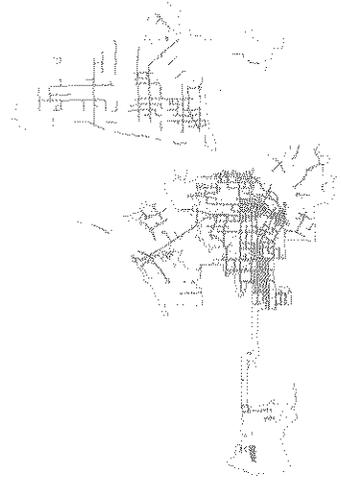
Use Data to Inform
Engineering

HIGH INJURY NETWORK (HIN)



Source: 2009 - 2013 SWITRS

Adding Infrastructure Data



Pedestrian Countdown
+
Signalized/Non-signalized
Intersection

Crosswalk Markings



Publishing the Database



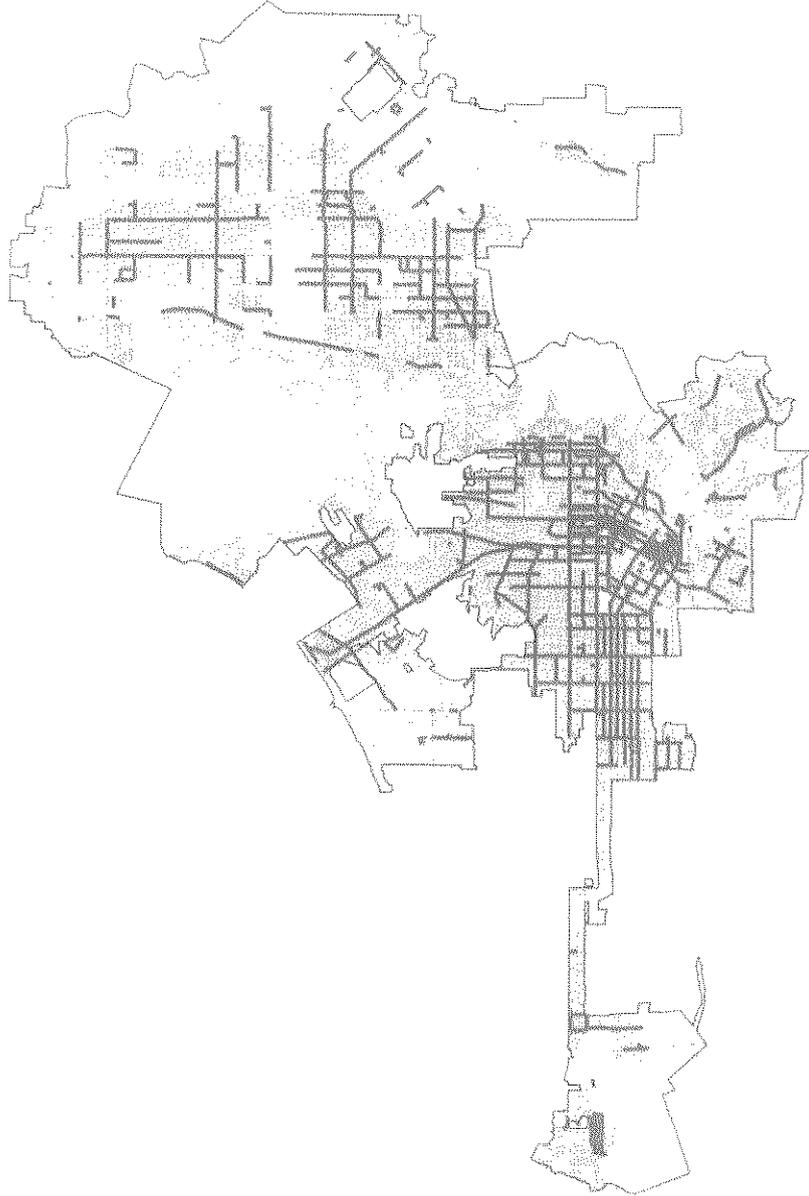
LADOT has published all the collision and infrastructure data used in the Vision Zero Technical Collision Analysis to <http://visionzero.geohub.lacity.org>

Data Process Summary

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

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

High-Injury Network (HIN) – 5 Years of Collision Data



We began with a basic overlay of 5 years of injury data on the City of LA street network, highlighting streets that showed a disproportionate number of severe and fatal injuries.

Even though the High-Injury Network represents only 6% of our streets, that's still over 460 miles of streets!

How do we further prioritize to create an annual work-plan?

LOCATION PRIORITIZATION

Potential Location Priorities

Most
Severe/
Fatal Injuries

Children &
Seniors

Social
Equity

Geographic
Equity

Dangerous
Behavior

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.

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
Geography	0.273
Inexpensive & Simple	0.252

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

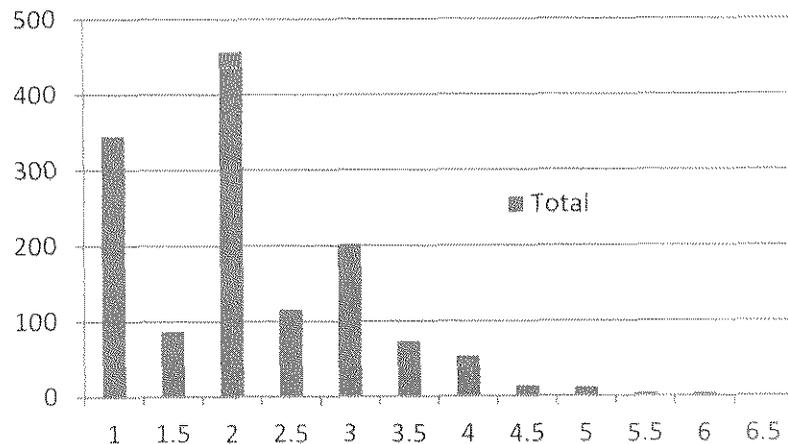
Developing a Work Plan – Priority Corridors

$$\begin{aligned} \text{Intersection Score} = & \\ & \text{Fatality (x1.5) +} \\ & \text{Severe Injury +} \\ & \text{Child or Senior* +} \\ & \text{Target Community**} \end{aligned}$$

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Intersection Score Distribution



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

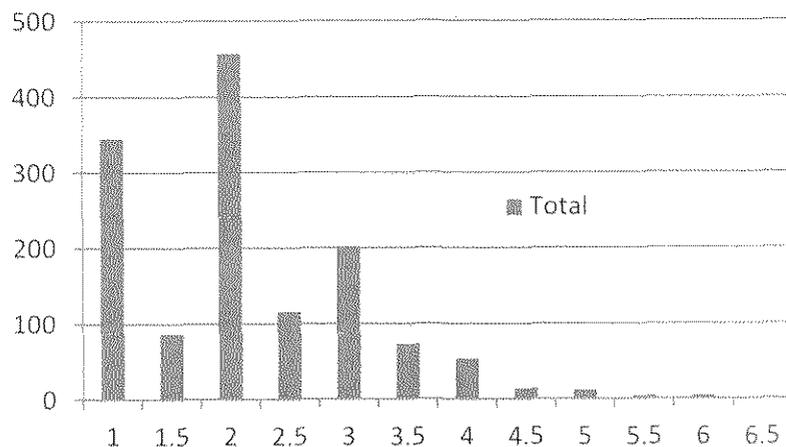
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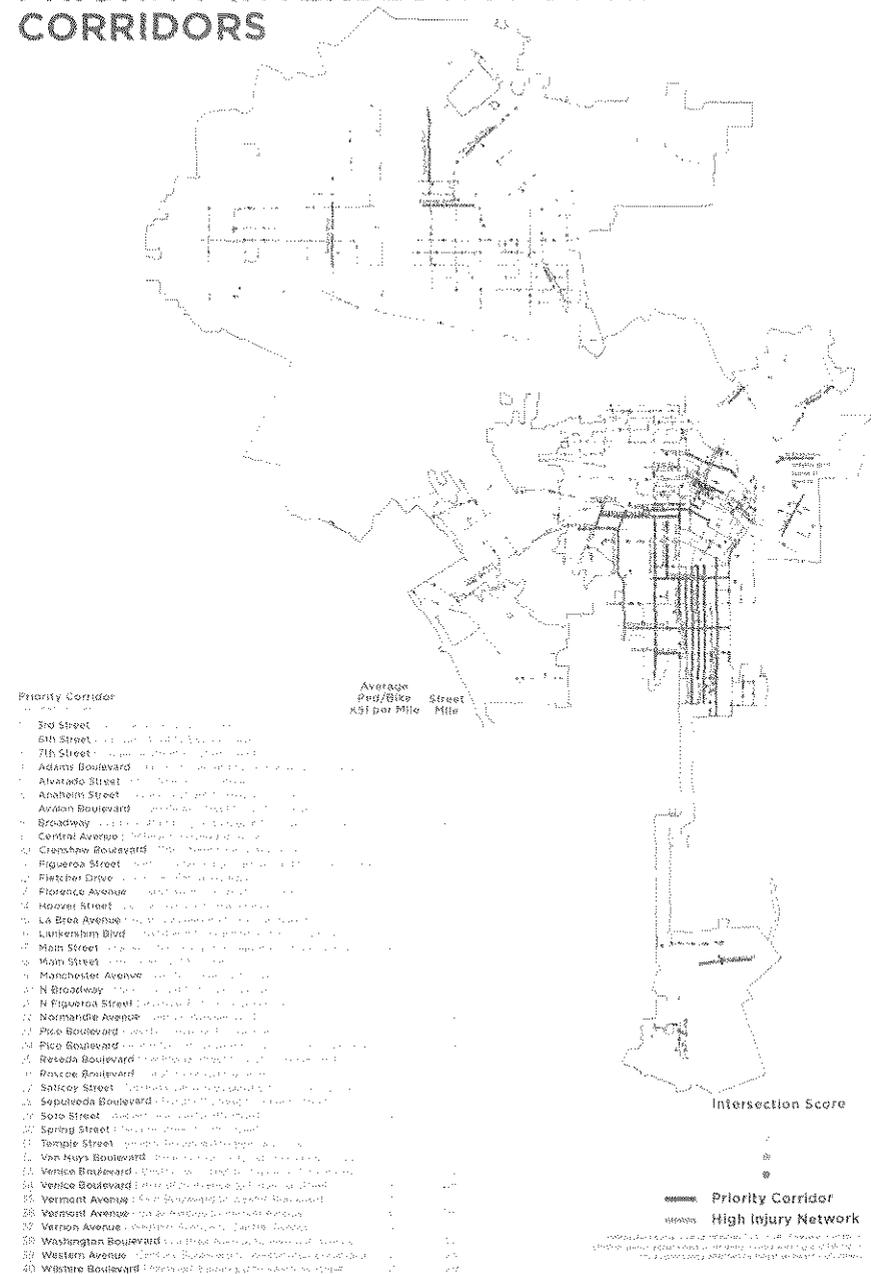
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Intersection Score Distribution



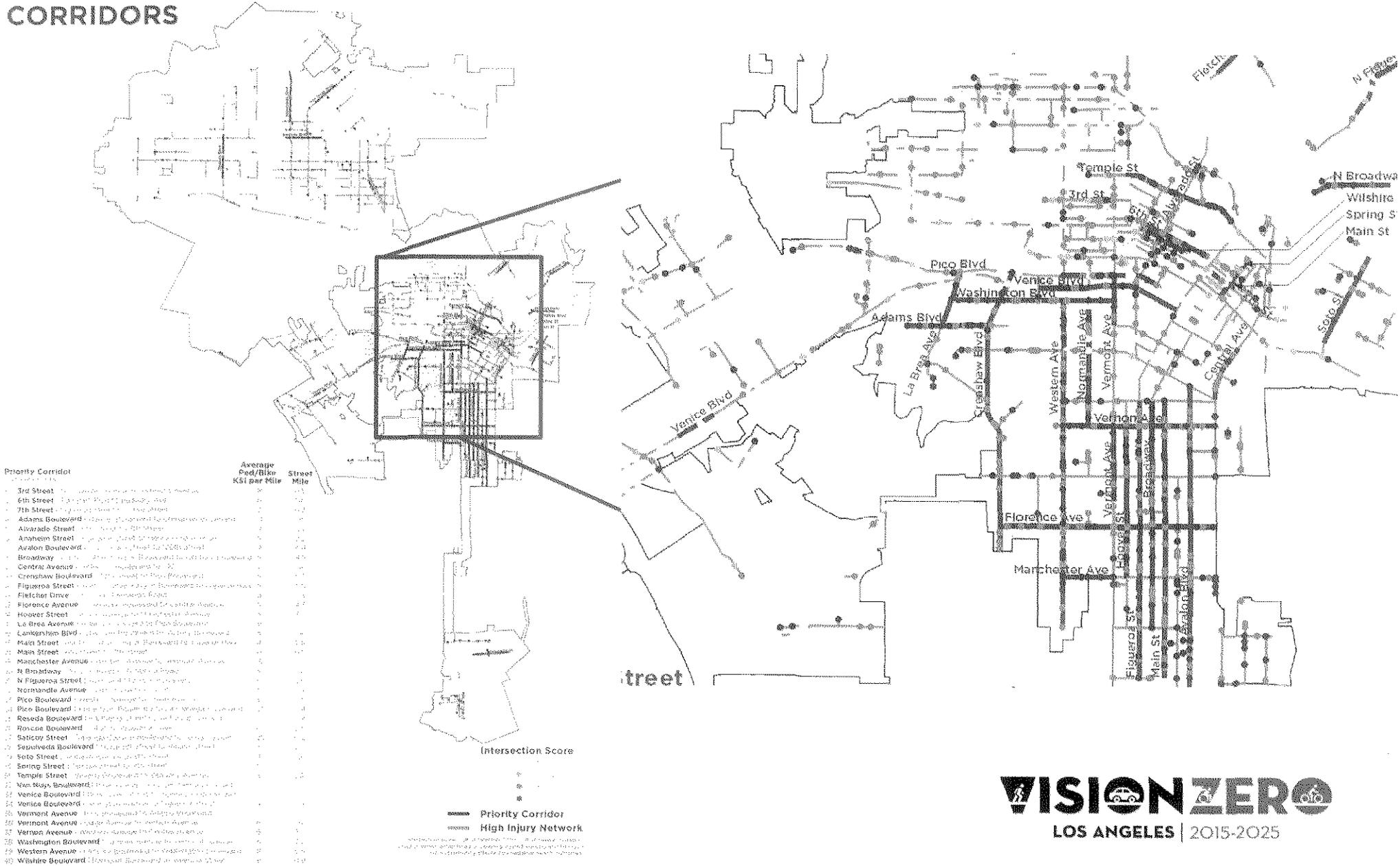
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HIGH INJURY NETWORK PRIORITY INTERSECTIONS AND CORRIDORS



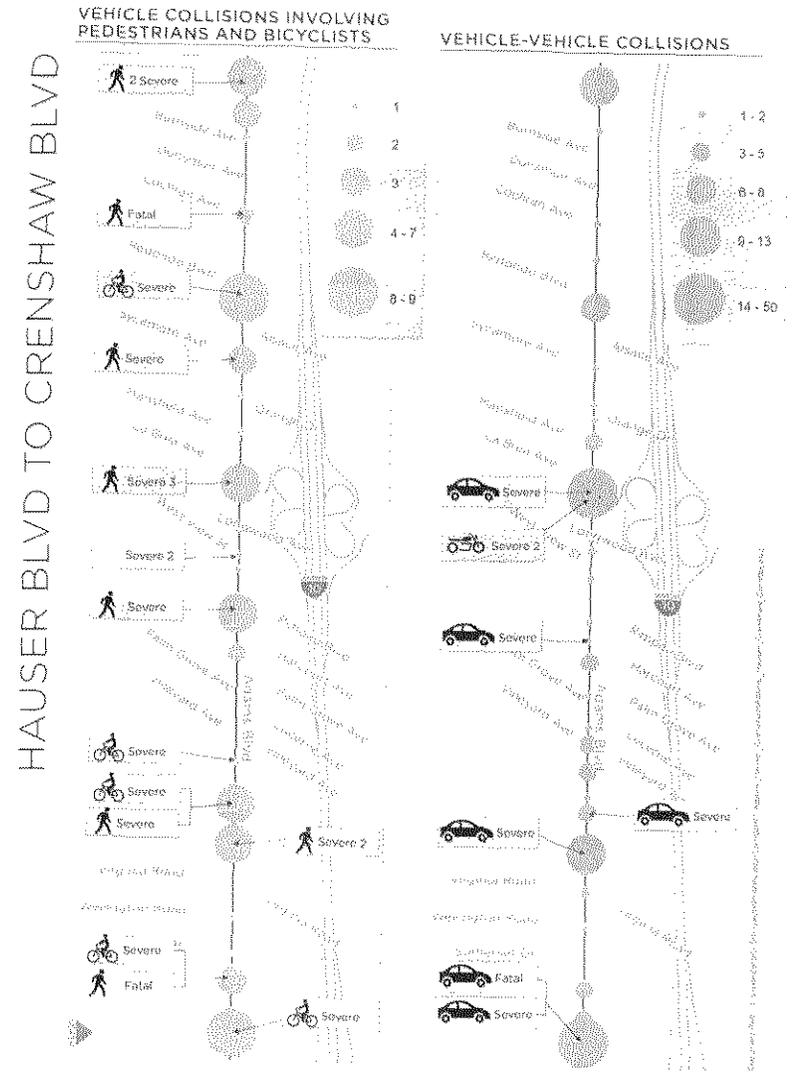
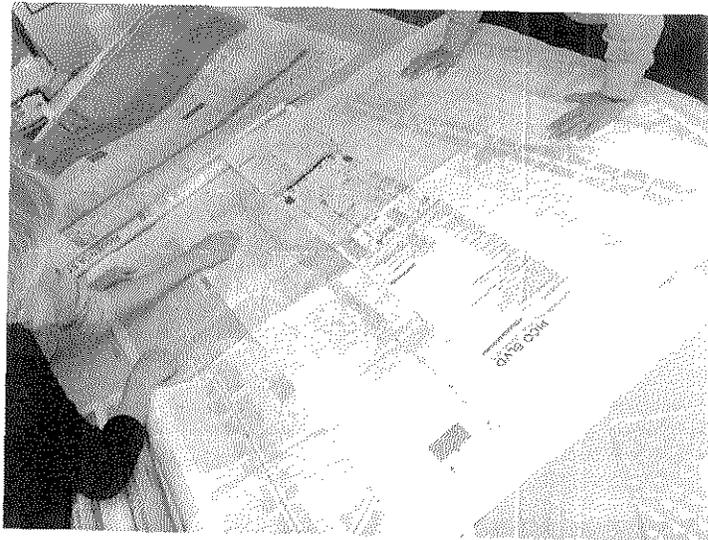
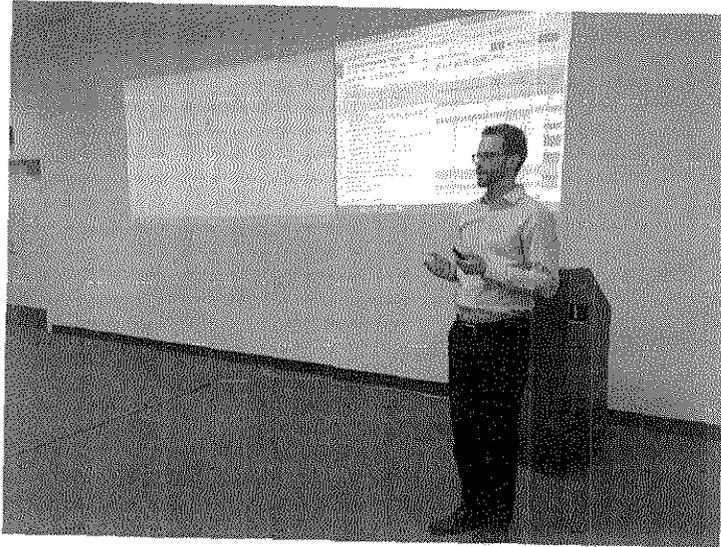
Focus on Corridors To Address Speed & Conflict

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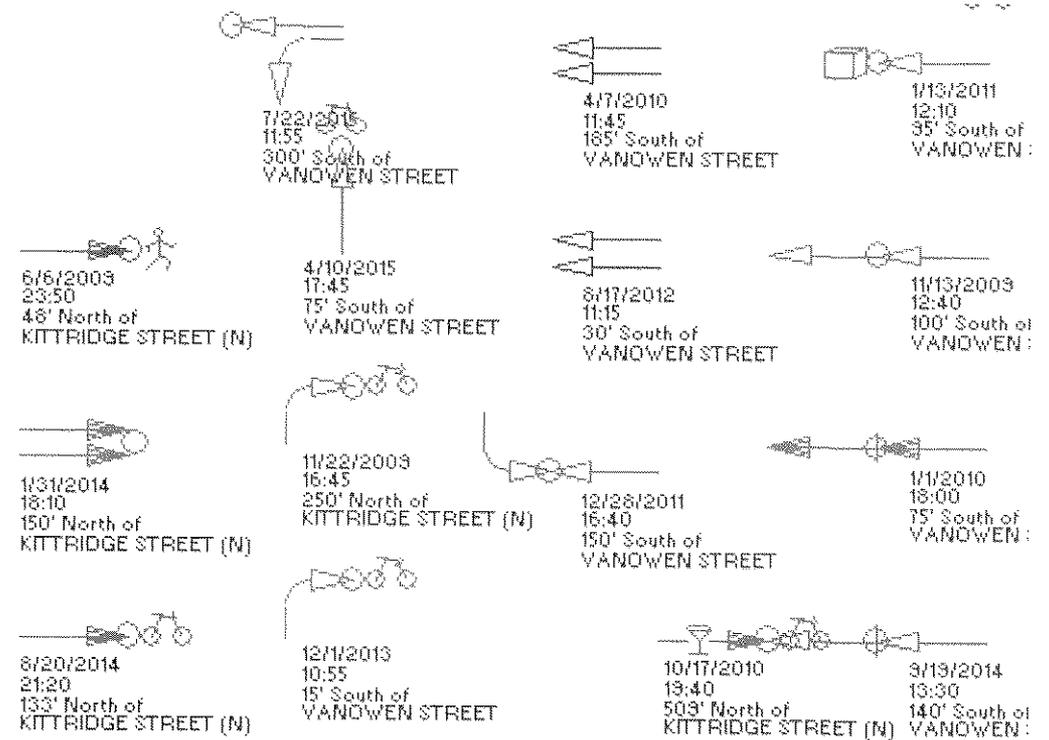
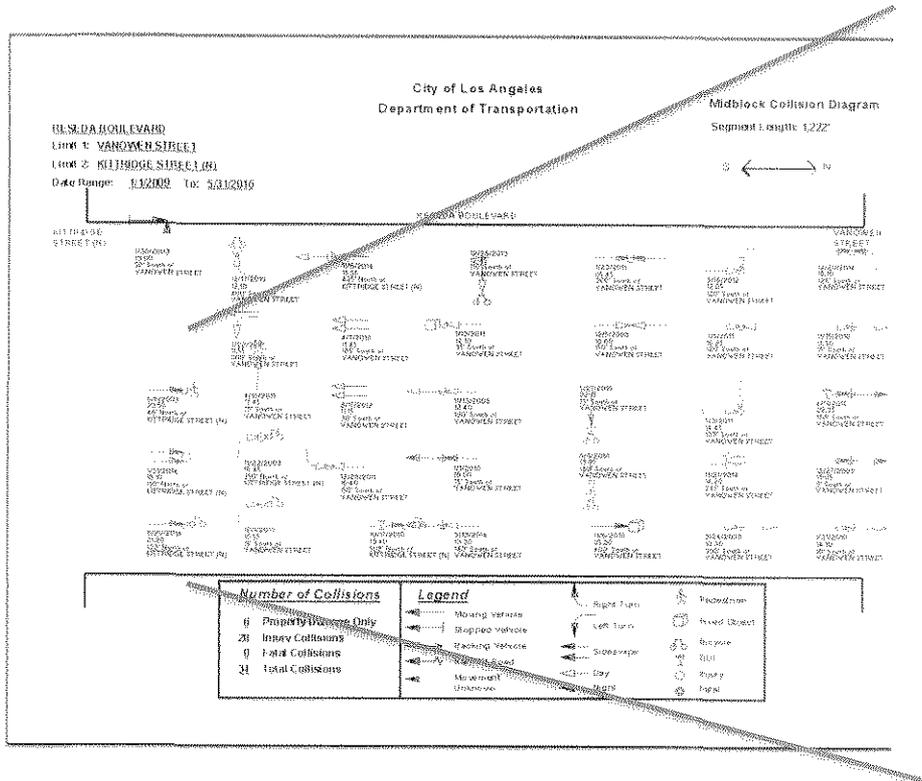
Corridor Applications – Engineering Design

After priority locations have been identified, LADOT engineers and planners move into conceptual design. First we developed a toolbox of safety countermeasures, then we did a detailed mapping of the collision hotspots and the surrounding assets / land-use.



Corridor Example: Reseda Bl

Collision Diagrams are Used to Identify Correctable Collision Patterns



Reseda Bl: Pair Profiles with Countermeasures

Profile

- Two fatal left-turn vehicle-to-vehicle collisions within signalized intersections
- Vehicle-to-bicycle collisions with bicycles traveling on the wrong side of the road
- Left-turn and right-turn vehicle-to-pedestrian collisions within signalized intersections

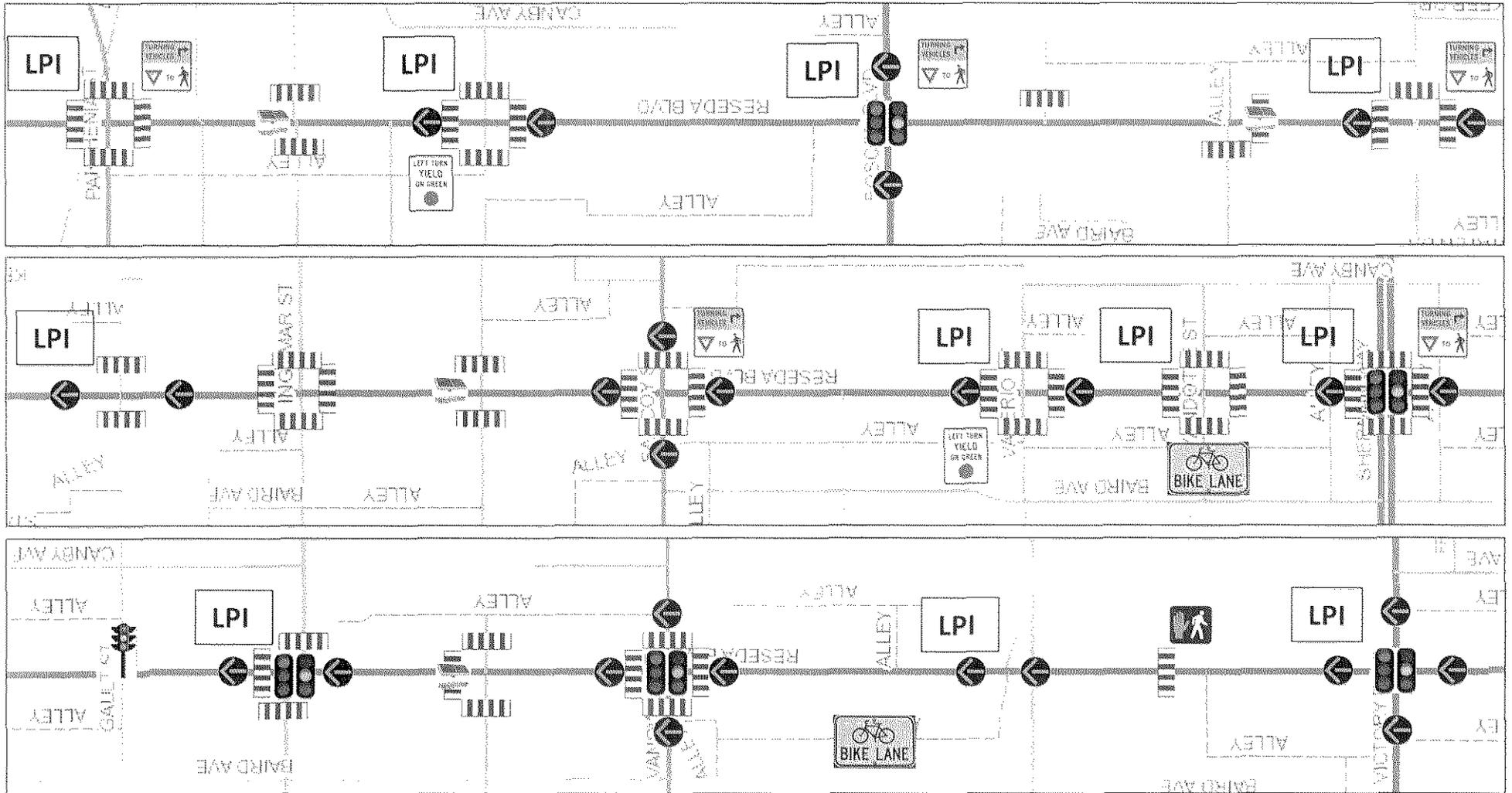


Proposed Countermeasure

- Install Protected Only Left-Turn Phase (CRF 99% reduction in left-turn collisions)
- Install additional bike lane pavement markings and bike sharrows at midblock locations (reduction in riding against flow of traffic)
- Install right (/left) turn vehicles Yield-to-Ped signs and install LPI where feasible (CRF 5-59% reduction in ped collisions)

Reseda Bl: Overview of Proposed Countermeasures

- Continental Crosswalk 
- Left Turn Phase 
- RRFB's 
- Increased Yellow & All-Red 
- LPI 
- APWD 
- New Signal 
- RT Yield to Ped. 
- LT Yield to Ped. 
- New Bike Lane 



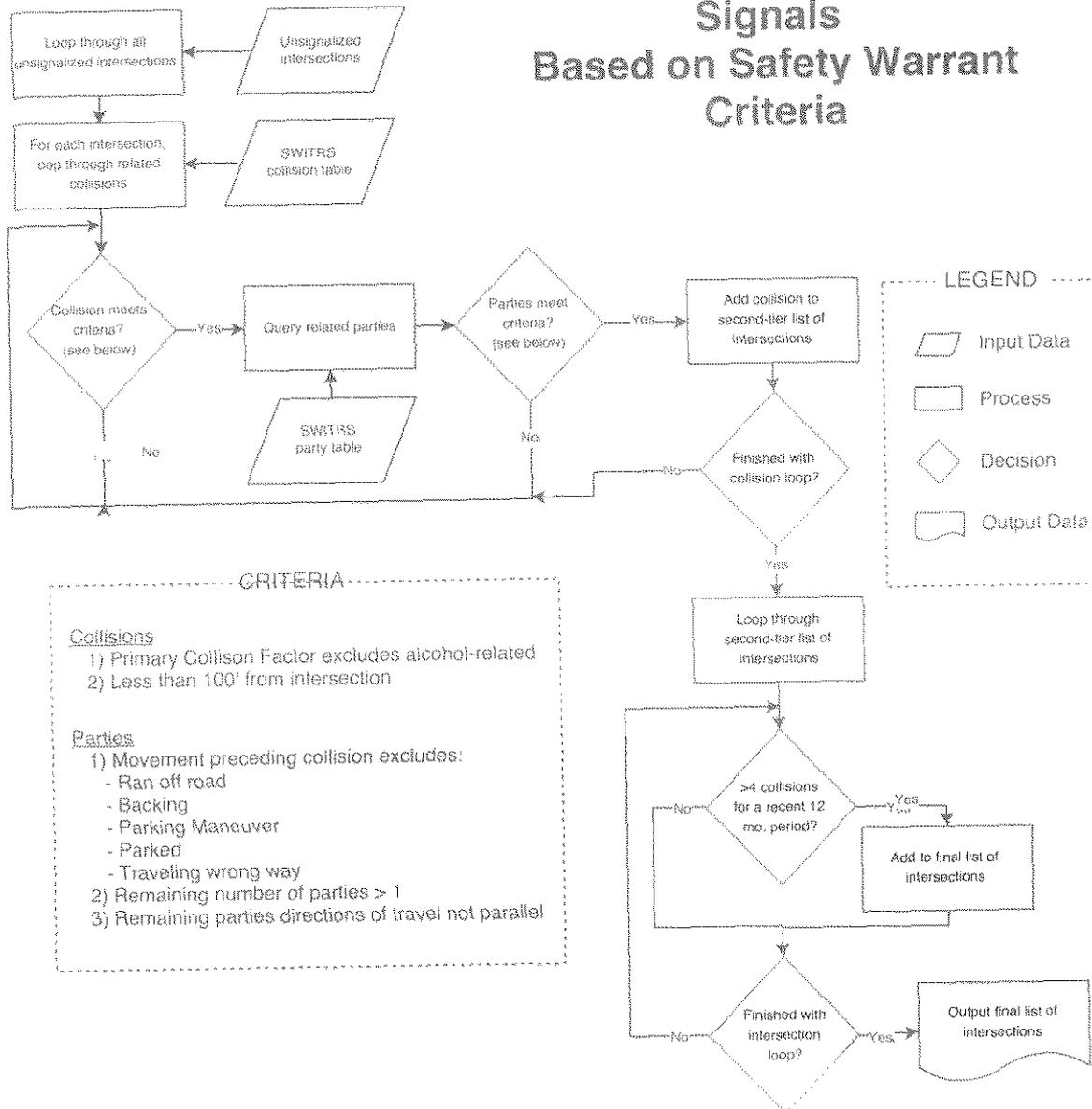
Workplan Development Summary

- 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

EXAMPLE BIG DATA APPLICATION

Signal Warrant Analysis

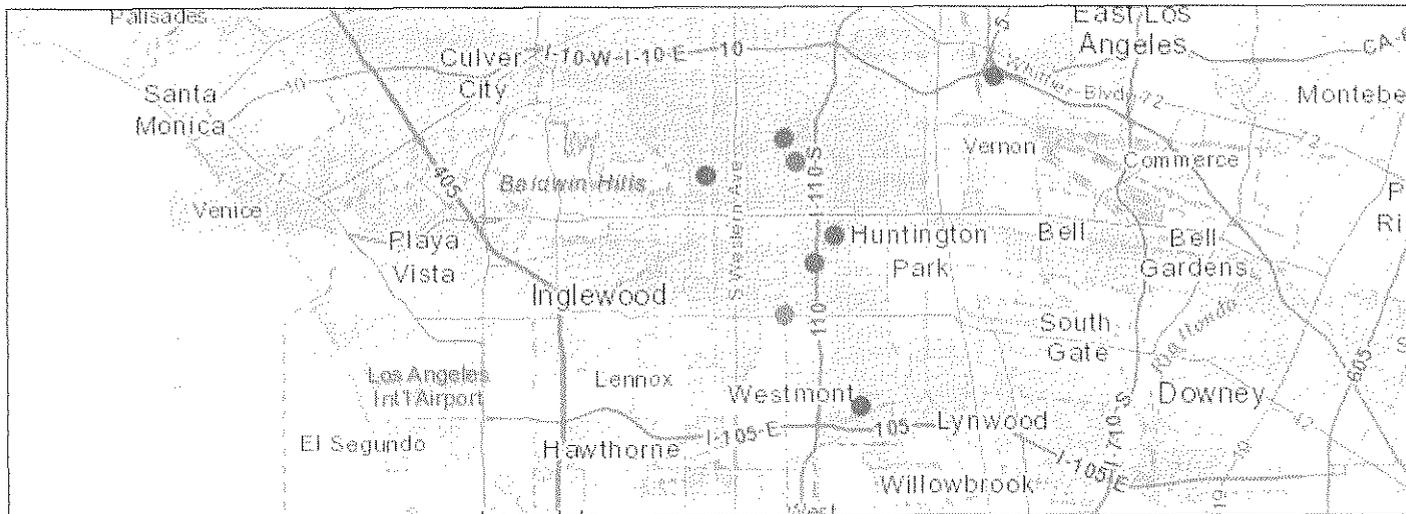
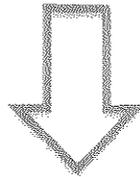
Citywide Identification of New Signals Based on Safety Warrant Criteria



Big Data Applications

```
1 ##### This script builds a table of the number of collisions involving U or U Turns (for each direction) #####
2
3 import arcpy
4 from arcpy import env
5
6 ##### Setup workspace #####
7 env.workspace = "Z:/VisionZero/GIS/Data/OtherDOT_AnalysisProjects/MetroExpressLanes_Mar2016/MetroExpressLanesMar-2016.gdb"
8 SigInt = "SigIntwithin3miBuffer"
9 Collisions = "Parties2013DriversUorLTurn"
10
11 ##### Loop through the Intersections & Count Collisions per Intersection #####
12
13 Collision_Table = []
14 print "Done"
15 int_fields = ["ASSETID", "LTurn_N", "LTurn_S", "LTurn_E", "LTurn_W", "LTurn_None"]
16 collision_fields = ["Parties_DTR_OF_TRAVEL", "SUMTRS2009 to 2013_IntID"]
```

Data
Analysis



Identified
Intersections
For Safety
Upgrades

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

NEXT STEPS

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

