THE JOYS & SORROWS OF WORKING WITH CRASH DATA

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Houston-Galveston Area Council
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INTRODUCTION

- Safety data was hard to come by

- Minimal electronic collection

- Paper reports available – difficult to work with

- Need to retrieve data from Police Department

- Anecdotal information heavily relied upon

- Safety assessments were very time consuming

NHTSA's FARS Data

- Focus on traffic-related fatalities

- Preferred for fatality assessment – "official"

- Regionally - 600 fatalities per year

- A fraction of 100,000 incidents annually

- Lot of focus on a fraction of the problem

CRASH DATA REQUIREMENT

SAFETEA-LU (Sec. 1401) requires that States:

…have in place a crash data system with the ability to perform safety problem identification and countermeasure analysis…

TxDOT's CRIS System

- CRIS – Crash Record Information System

- Collection/entry of Serious Crashes since 2003

- Maintains five years of crash data for State

- 500,000 records for Houston Region (2007-11)

- Crashes geocoded by TxDOT

- Dataset provided to users

- Don't need to sift through ½-mile of reports
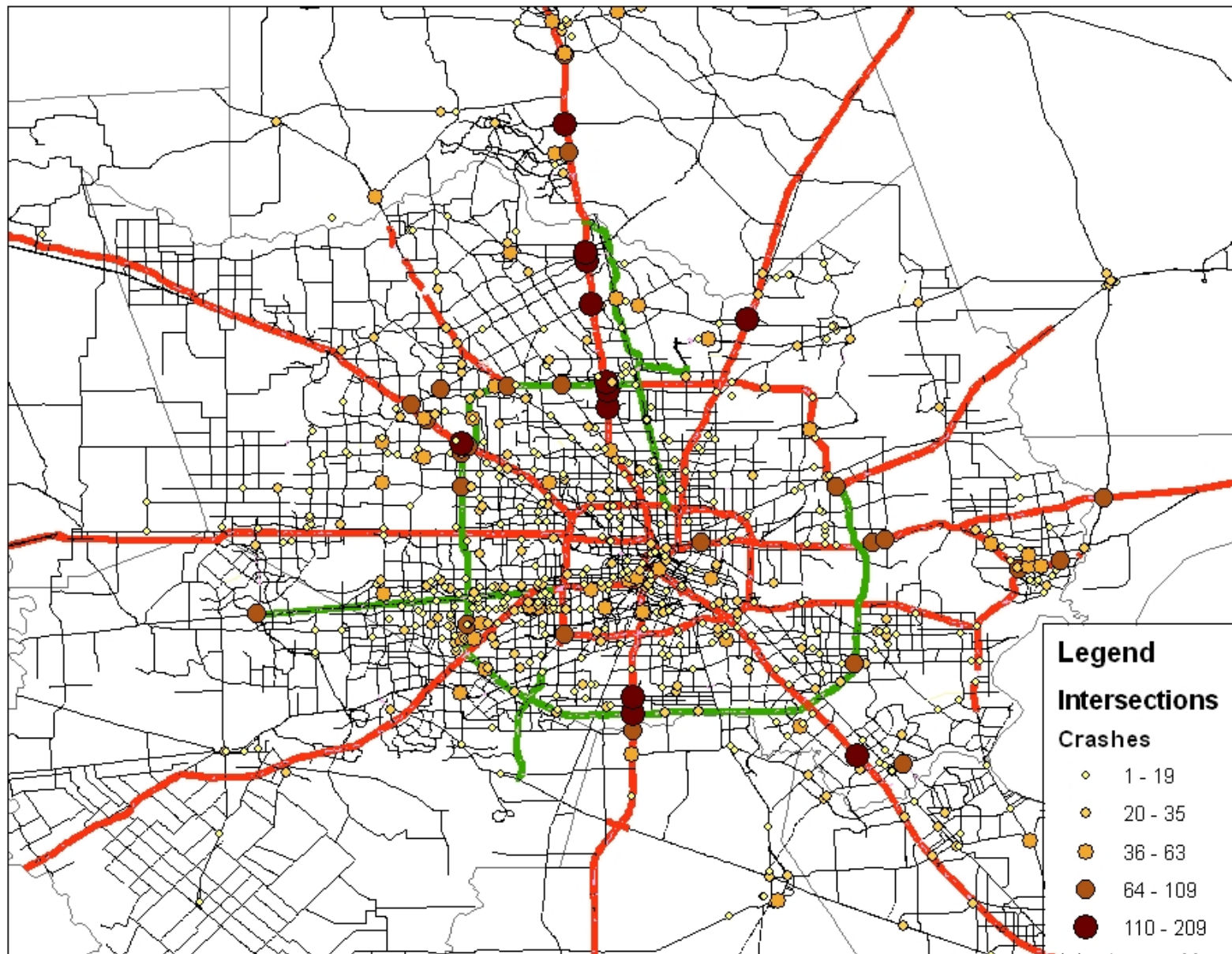
INFORMATION SMÖRGÅSBORD!!!

- Fatalities/Injuries/PDO
- Location of Crash
- Speed Limit on Facility
- Nature of Collision
- Date/Time of Crash
- Vehicle Direction
- Intersection Information
- Bicyclists
- Motorcyclists
- Speeding/Recklessness

- Objects Struck
- Contributing Factors
- Vehicles Involved
- Age of Drivers
- Weather Conditions
- Seat Belt Usage
- Distraction
- Pedestrians
- Trucks
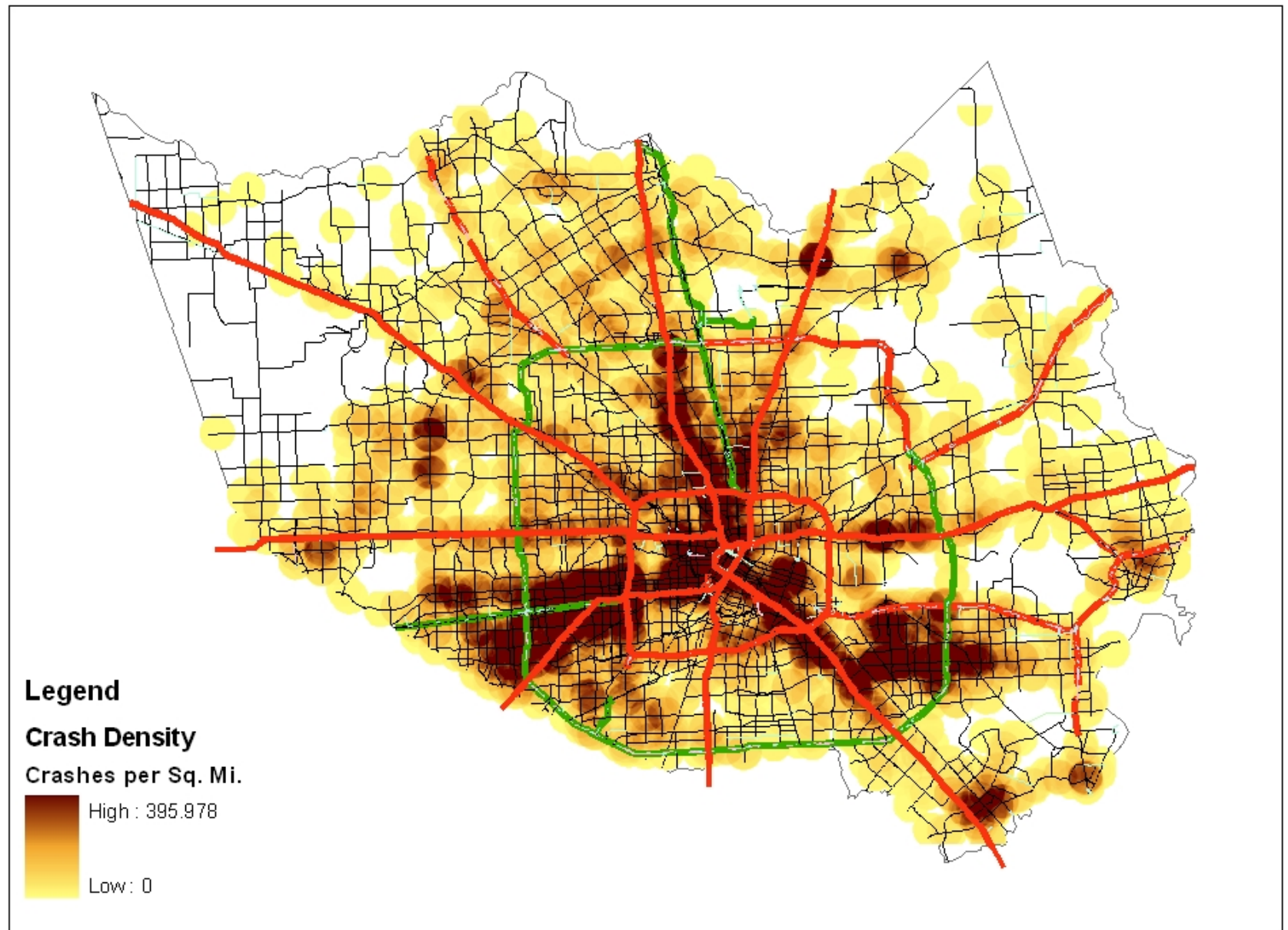- Alcohol/Drug Involvement

Uses Of Crash Data

- Identification of Crash Hot Spots

- Identification of increased enforcement needs

- Identifying potential engineering fixes

- Identifying traffic operation needs

- Public information and outreach

- Political Motivation Tool

High Frequency Crash Locations, 2005-2007

Legend

Intersections

Crashes

- 1 - 19
- 20 - 35
- 36 - 63
- 64 - 109
- 110 - 209

DWI Crash Density for Harris County, 2006-2008

Legend

Crash Density

Crashes per Sq. Mi.

High : 395.978

Low : 0
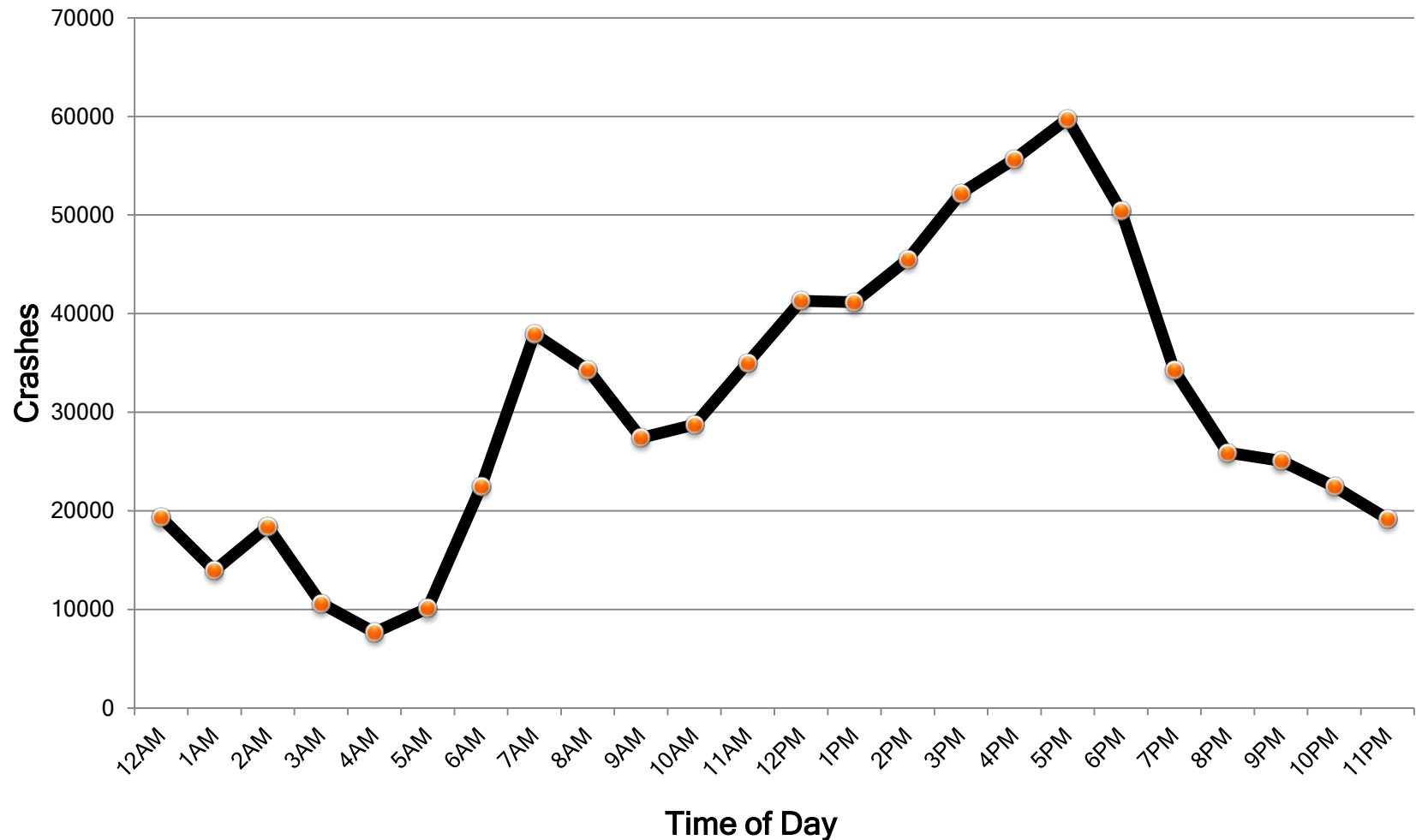
Crashes – Time of Day

Crash Time of Day Comparison

Legend: Impaired (red), Single Vehicle (blue)
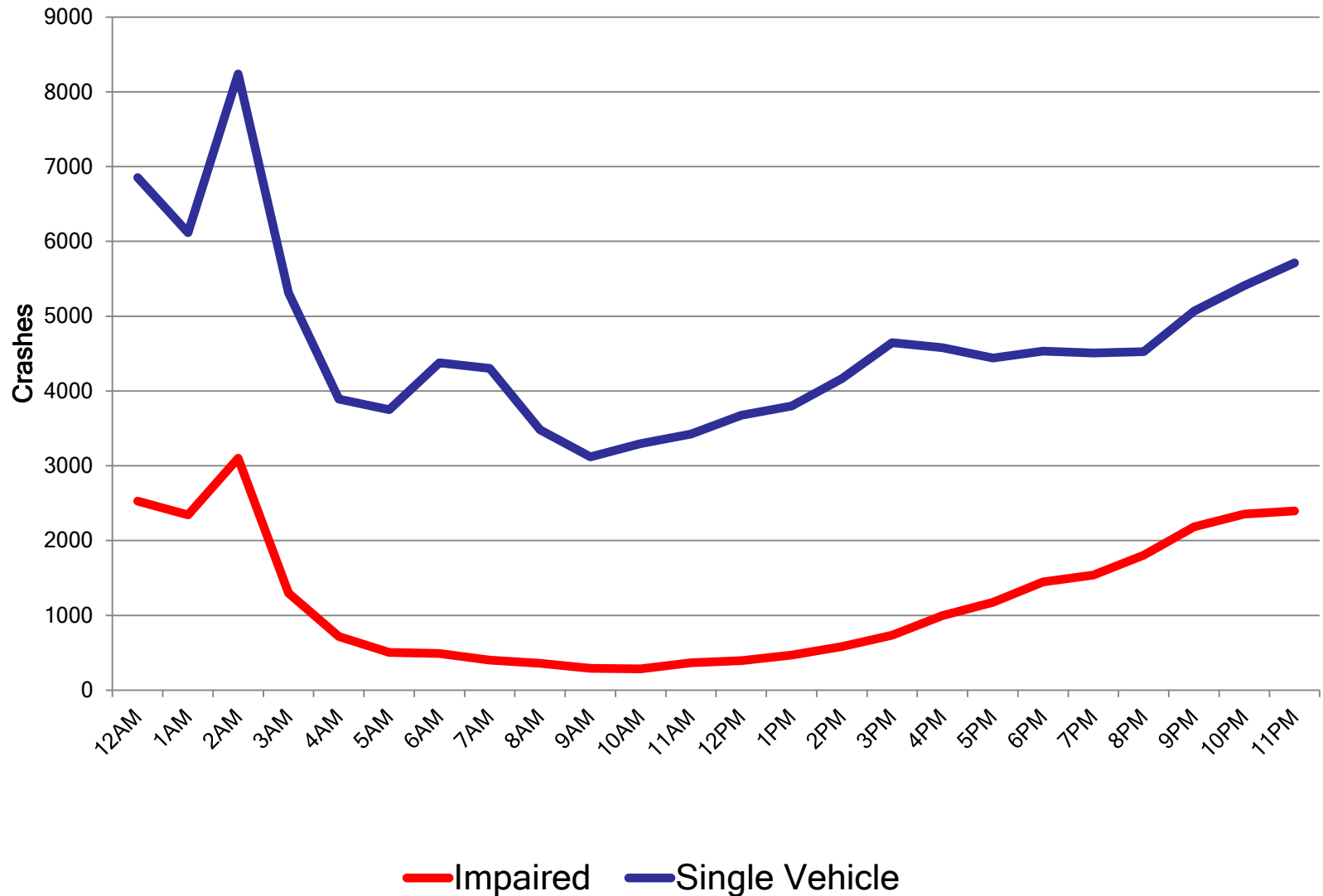
THE State of

SAFETY

IN THE REGION

JUNE **2009**

Program Update, Legislative Review and Crash Analysis

Houston-Galveston Area Council

TABLE 45: Total Fatalities from Young Driver Crashes

County Name	2003	2004	2005	2006	2007	Total
Brazoria	8	9	9	9	3	38
Chambers	2	3	1	1	2	9
Fort Bend	12	11	6	6	8	43
Galveston	2	3	4	5	4	18
Harris	125	96	116	80	87	504
Liberty	4	11	5	5	9	34
Montgomery	29	18	16	27	18	108
Waller	1	5	1	3	0	10
Region Total	**183**	**156**	**158**	**136**	**131**	**764**

TABLE 46: Total Injuries from Young Driver Crashes (Type A, B, & C)

County Name	2003	2004	2005	2006	2007	Total
Brazoria	429	447	441	416	423	2,156
Chambers	76	111	73	102	85	447
Fort Bend	549	569	491	502	447	2,558
Galveston	544	447	404	366	341	2,102
Harris	8,469	6,816	7,140	6,207	5,506	34,138
Liberty	130	124	115	161	144	674
Montgomery	725	709	726	611	677	3,448
Waller	67	113	113	101	57	451
Region Total	**10,989**	**9,336**	**9,503**	**8,466**	**7,680**	**45,974**

TABLE 47: Total Incapacitating Injuries from Young Driver Crashes (Type A)

County Name	2003	2004	2005	2006	2007	Total
Brazoria	35	42	55	24	42	198
Chambers	16	20	7	6	5	54
Fort Bend	34	49	39	36	35	193
Galveston	32	31	35	26	32	156
Harris	403	319	332	335	266	1,655
Liberty	20	17	12	16	10	75
Montgomery	64	88	63	67	62	344
Waller	6	10	13	17	2	48
Region Total	**610**	**576**	**556**	**527**	**454**	**2,723**

BUT...

Sources Of Error

- Data Collection and Reporting

- Data Entry and Processing

- Data Analysis and Presentation

DON'T TAKE DATA FOR GRANTED!

DATA REPORTING & COLLECTION

- Law Enforcement is primary data collector

- Law Enforcement doesn't like filling out forms

- Information based on officer's best judgment

Law Enforcement and TxDOT Use ONLY
☐ FATAL ☐ CMV ☐ SCHOOL BUS ☐ RAILROAD ☐ MAB ☐ SUPPLEMENT ☐ ACTIVE SCHOOL ZONE

Total Num. Units	Total Num. Prsns.	TxDOT Crash ID

Texas Peace Officer's Crash Report (Form CR-3 1/1/2010)
Mail to: Texas Department of Transportation, Crash Records, P.O. Box 149349, Austin, TX 78714. Questions? Call (512) 486-5780
Refer to Attached Code Sheet for Numbered Fields
★ =These fields are required on all additional sheets submitted for this crash (ex.: additional vehicles, occupants, injured, etc.).
Page___ of___

IDENTIFICATION & LOCATION

★ Crash Date (MM/DD/YYYY) ___/___/___ ★ Crash Time (24HRMM) ___ Case ID ___ Local Use ___

★ County Name ___ ★ City Name ___ ☐ Outside City Limit

In your opinion, did this crash result in at least $1,000 damage to any one person's property? ☐ Yes ☐ No Latitude (decimal degrees) ___ Longitude (decimal degrees) ___

ROAD ON WHICH CRASH OCCURRED
★1 Rdwy. Sys. | 1 Hwy. Num. | 2 Rdwy. Part | Block Num. | 3 Street Prefix | ★ Street Name | 4 Street Suffix

☐ Crash Occurred on a Private Drive or Road/Private Property/Parking Lot | ☐ Toll Road/Toll Lane | Speed Limit | Const. Zone ☐ Yes ☐ No | Workers Present ☐ Yes ☐ No | Street Desc.

INTERSECTING ROAD, OR IF CRASH NOT AT INTERSECTION, NEAREST INTERSECTING ROAD OR REFERENCE MARKER
At Int. ☐ Yes ☐ No | 1 Rdwy. Sys. | Hwy. Num. | 2 Rdwy. Part | Block Num. | 3 Street Prefix | Street Name | 4 Street Suffix

Distance from Int. or Ref. Marker ___ ☐ FT ☐ MI | 3 Dir. from Int. or Ref. Marker | Reference Marker | Street Desc. | RRX Num.

VEHICLE, DRIVER & PERSONS

Unit Num. | 5 Unit Desc. | ☐ Parked Vehicle | ☐ Hit and Run | LP State | LP Num. | VIN

Veh. Year | 6 Veh. Color | Veh. Make | Veh. Model | 7 Body Style | ☐ Pol., Fire, EMS on Emergency (Explain in Narrative if checked)

8 DL/ID Type | DL/ID State | DL/ID Num. | 9 DL Class | 10 CDL End. | 11 DL Rest. | DOB (MM/DD/YYYY)

Address (Street, City, State, ZIP)

Person Num. | 12 Prsn. Type | 13 Seat Position | Name: Last, First, Middle — Enter Driver or Primary Person for this Unit on first line | 14 Injury Severity | Age | 15 Ethnicity | 16 Sex | 17 Eject. | 18 Restr. | 19 Airbag | 20 Helmet | 21 Sol. | 22 Alc. Spec. | Alc. Result | 23 Drug Spec. | 24 Drug Result | 25 Drug Category

Not Applicable – Alcohol and Drug Results are only reported for Driver/Primary Person for each Unit.

☐ Owner ☐ Lessee | Owner/Lessee Name & Address

Proof of Fin. Resp. ☐ Yes ☐ No ☐ Expired ☐ Exempt | 26 Fin. Resp. Type | Fin. Resp. Name | Fin. Resp. Num.

Fin. Resp. Phone Num. | 27 Vehicle Damage Rating 1 ___ * ___ | 27 Vehicle Damage Rating 2 ___ * ___ | Vehicle Inventoried ☐ Yes ☐ No

Towed By ___ Towed To ___

Unit Num. | 5 Unit Desc. | ☐ Parked Vehicle | ☐ Hit and Run | LP State | LP Num. | VIN

Veh. Year | 6 Veh. Color | Veh. Make | Veh. Model | 7 Body Style | ☐ Pol., Fire, EMS on Emergency (Explain in Narrative if checked)

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Towed By ___ Towed To ___

Law Enforcement and TxDOT Use ONLY.
Form CR-3 1/1/2010 | Case ID ___ | TxDOT Crash ID ___ | Page ___ of ___

DISPOSITION OF INJURED/ KILLED

Unit Num.	Prsn. Num.	Taken To	Taken By	Date of Death (MM/DD/YYYY)	Time of Death (24HRMM)

CHARGES

Unit Num.	Prsn. Num.	Charge	Citation/Reference Num.

DAMAGE

Damaged Property Other Than Vehicles	Owner's Name	Owner's Address

CMV

Unit Num. | ☐ 10,001+ LBS. | ☐ TRANSPORTING HAZARDOUS MATERIAL | ☐ 9+ CAPACITY | 28 Veh. Oper. | 29 Carrier ID Type | Carrier ID Num.

Carrier's Corp. Name | Carrier's Primary Addr.

30 Rdwy. Access | 31 Veh. Type ☐ RGVW ☐ GVWR | HazMat Released ☐ Yes ☐ No | 32 HazMat Class Num. | HazMat ID Num. | 32 HazMat Class Num. | HazMat ID Num.

33 Cargo Body Style | Trailer 1 Unit Num. ☐ RGVW ☐ GVWR | 34 Trlr. Type | Trailer 2 Unit Num. ☐ RGVW ☐ GVWR | 34 Trlr. Type

Sequence Of Events | 35 Seq. 1 | 35 Seq. 2 | 35 Seq. 3 | 35 Seq. 4 | Total Num. Axles | Total Num. Tires

FACTORS & CONDITIONS

Unit Num.	36 Contributing Factors (Investigator's Opinion) Contributing	May Have Contrib.	37 Vehicle Defects (Investigator's Opinion) Contributing	May Have Contrib.	38 Weather Cond.	39 Light Cond.	40 Entering Roads	41 Roadway Type	42 Roadway Alignment	43 Surface Condition	44 Traffic Control

NARRATIVE AND DIAGRAM

Investigator's Narrative Opinion of What Happened (Attach Additional Sheets If Necessary) | Indicate North | Field Diagram – Not to Scale

INVESTIGATOR

Time Notified (24HRMM) ___ | How Notified ___ | Time Arrived (24HR MM) ___ | Report Date (MM/DD/YYYY) ___ | ID Num. ___

Invest. Comp. ☐ Yes ☐ No | Investigator Name (Printed) ___

ORI Num. ___ | ★ Agency ___ | District/Area ___
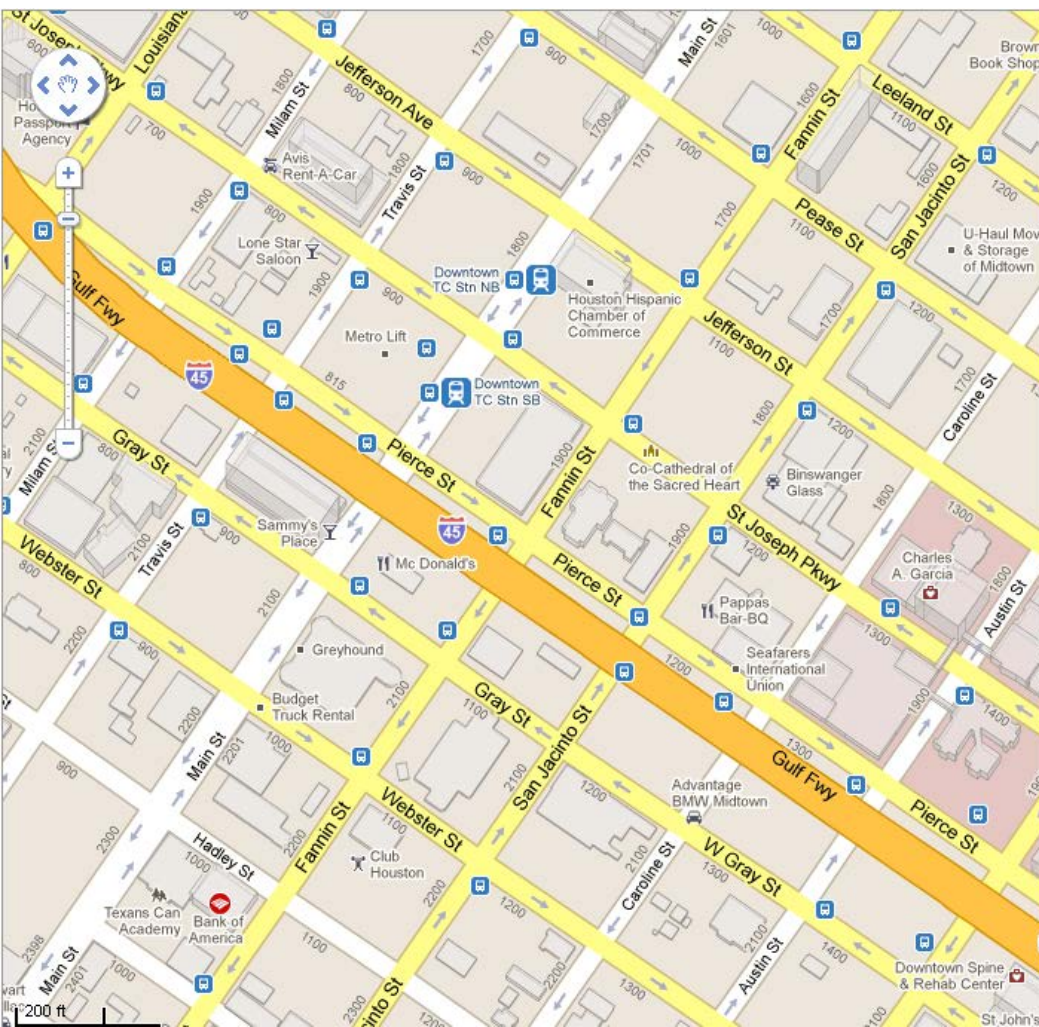
DATA REPORTING & COLLECTION

- Correct assessment of the crash

- Address/Location Identification

- Proper Coding on Report

- Spelling

- Legibility

Data Entry & Processing

- Inaccurate data entry

- Austin not familiar with Houston area roads

- Development of inferred data

- Business Rules vs. Report Data (official record)

- Geocoding accuracy

- Not included – Narratives and Diagrams

TEXAS PEACE OFFICER'S CRASH REPORT CRB-3 (Rev. 01-06) Submission of Crash Records: This report may be submitted via the CRIS Web Portal, electronically submitted via XML or mailed to the TEXAS DEPARTMENT OF PUBLIC SAFETY, PO BOX 4087, AUSTIN TX 78773-0350. Please see the DPS Instructions to Police for more details regarding these submission methods or look on the CRIS Website at http://www.txdps.state.tx.us/crisproject/index.htm

HOUSTON POLICE DEPARTMENT MOTOR VEHICLE ACCIDENT REPORT   INCIDENT

PLACE WHERE ACCIDENT OCCURRED (County)	**HARRIS COUNTY**	CITY OR TOWN	**Houston**		DO NOT WRITE IN THIS SPACE

IF ACCIDENT WAS OUTSIDE HARRIS County, Indicate County_____ TYPE _____   **8C50** District   Local No. **009833008-G**

Indicate number of vehicles involved

ROAD ON WHICH ACCIDENT OCCURRED **9200** Block Number   **MESA** Street or Road Name   Route No. or Street Code

Under Const. ☐ YES ☒ NO   Speed Limit **50**   DPS No. _____

Complete One — AT INTERSECTION   Block Number   Street or Road Name   Route No. or Street Code

Under Const. ☐ YES ☐ NO   Speed Limit _____   Location _____

NOT AT INTERSECTION   ☐ FT. ☐ MI. ☐ N ☐ S ☐ E ☐ W Of _____

Show milepost or nearest intersection numbered highway. If urban, show nearest intersecting street or reference point.

Fat. Rec. _____ Dr. Rec. _____

DATE OF ACCIDENT	**JANUARY**	**21**	**2008**	DAY OF WEEK	**MONDAY**	Hour **02:15**	☒ A.M. ☐ P.M.	If exactly noon or midnight so state	Code _____ Severity _____

Type _____

	Business Address	Phone #
UNIT NO. 1	**NONE**	**NONE**
UNIT NO. 2	**NONE**	**NONE**
UNIT NO. 3		
UNIT NO. 4		
UNIT NO. 5		
UNIT NO. 6		

IF EMERGENCY VEHICLE   UNIT # _____

WAS IT USING SIREN?   YES   NO   INTERMITTENTLY   STEADY   RED LIGHTS ON

REMARKS

UNIT #! : NO STATEMENT FROM THE DRIVER. DRIVER WAS DOA AT SCENE.

REMARKS

WITNESS: HAWKINS, NEQUISHA CHANTEL B/F DOB: 03/31/84
DL# 18274351
WITNESS STATED I WAS THE PASSENGER IN THE VEHICLE WHEN THE ACCIDENT TOOK PLACE. WE RACED WITH ANOTHER CAR. WE CUT OFF WITH ANOTHER CAR, A GOLD TOYOTA CAMRY BACK AND FORTH UNTIL WE LOST CONTROL AND GOT INTO AN ACCIDENT.

NOT TO SCALE

N (↑)

9200 MESA

DIAGRAM NOT TO SCALE

SGT MORGAN, 3203N ON SCENE

#1D — VEH FINAL REST

#1C — 4TH P.1

#1B — 3rd P.2

— 2nd P.2

#1A — 1st P.1

#1
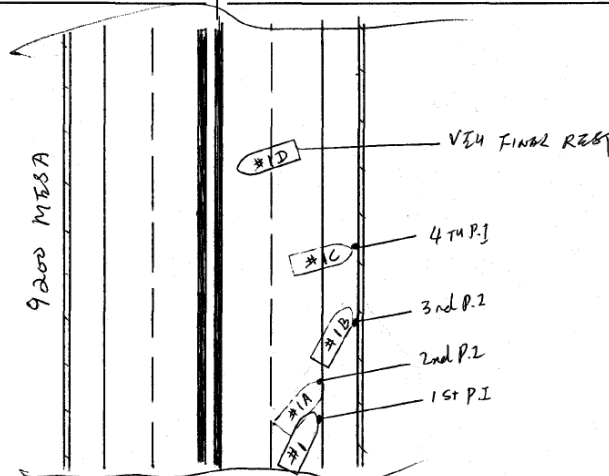
SIGNATURE	J. Z. LIN	HOUSTON PD	01/21-2008
	Person Completing Supplement	Department	Date Supplement Made

Data Analysis & Assessment

- A lot of data to work with – easy to misuse

- Crash subrecords have similar-looking information

- "Geoselection" of data can lead to inaccurate results

- Failure to search for alternative/misspelled names

- Failure to look at Contributing Factors

- Larger crash totals do not necessarily mean more dangerous (normalize w/VMT)

- Misuse of data can lead to misrepresentation

Concluding Thoughts

- Safety data are a great tool

- Critical for problem identification

- Use is multi-disciplinary

- Can assist in policy development

- Proper use can help save lives

More Concluding Thoughts

- Don't take data as Gospel!!!

- Work with Law Enforcement to address collection issues

- Work with Processors on optimizing quality

- Develop expertise in handling data

- Take care in disseminating data to end users

THANK YOU

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