

# Miami-Dade Phase II Implementation Results

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# University of Florida Department of Civil and Coastal Engineering

## **UF Team**

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- ✧ Ralph Ellis, Overall Principal Investigator
- ✧ Ron Van Houten, Technical Principal Investigator

## **Miami-Dade County Team**

- Mohamed Hussan, Chief of Traffic Engineering
- David Henderson, Pedestrian Bicycle Coordinator
- Vishnu Rajkumar, Signal Design Admin
- Bob Williams, Traffic Signal Engineer

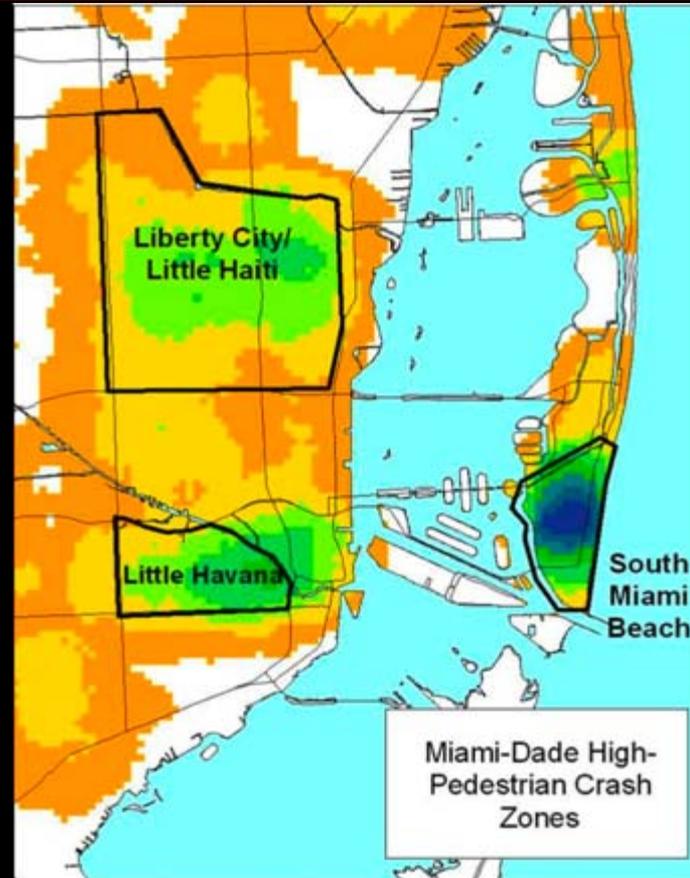
# Crashes in Miami-Dade County

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- During the nine years prior to the FHWA project there were 15,472 pedestrian crashes and 670 fatal pedestrian crashes
- The percent of fatalities was approximately equal for State, County and Local Roads

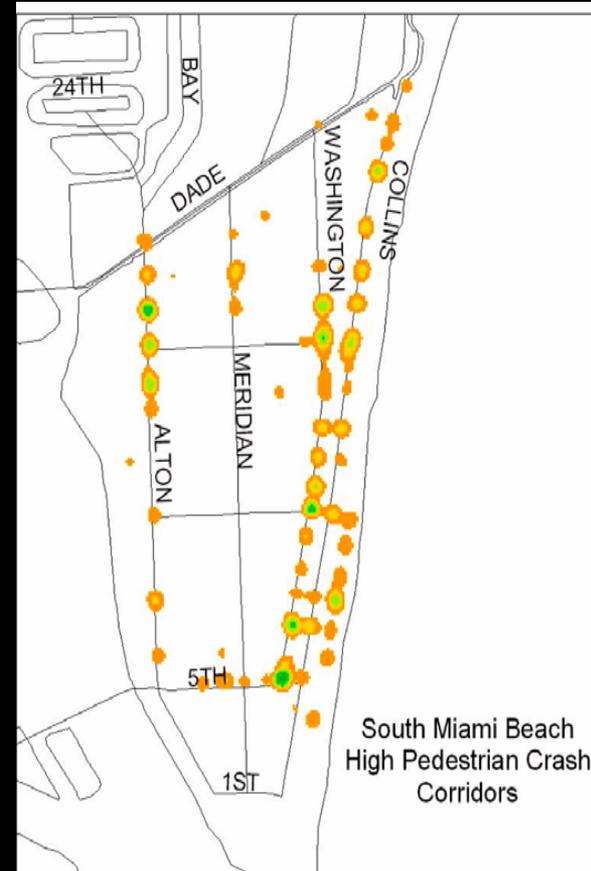
# Crashes in Miami-Dade County

- Many crashes are tightly clustered in Miami Beach



# Crashes are concentrated along specific corridors

- Most crashes occurred along North/South corridors
- The beach corridors had more night crashes



# Overall study plan

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- Enter all crashes into a GIS data base
- Examine crash reports for crash type and match countermeasures to crashes
- Implement countermeasures and evaluate the results

# Treatment History

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- Following a baseline period a large scale NHTSA project was implemented that introduced educational and enforcement interventions in high crash zone.
- The FHWA project focusing on engineering treatments was added later.

# Examples of traditional treatments evaluated

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- Reducing minimum green time
- Recessed stop lines
- Lead pedestrian phase
- Turning vehicles yield to ped signs
- In street signs
- Eliminate permissive left turn



# Examples of Intelligent System Countermeasures

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- Countdown pedestrian signals
- Push buttons that confirm press
- Rectangular LED rapid flashing beacons (RRFB; ne Stutter Flash)
- Video pedestrian detection
- ITS NRTOR signs



# Cost of Countermeasures

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■ Planning (Phase 1)	\$125,000
■ Implementation (Phase 2)	
■ Design of countermeasures	\$133,933
■ Installation/deployment	\$108,833
■ Materials and equipment	\$302,913
■ Data collection & eval	\$283,172
■ Program management	\$182,690

# Results by Treatment

Call buttons that confirm press	More pedestrians pressed button & More waited for WALK to cross
Reduce Minimum Green Time	Produced a large increase in pedestrian compliance with the WALK
Video Pedestrian Detection	Reliable but many peds did not wait even when the device placed the call
Lead Pedestrian Phase	This treatment produced an increased yielding by drivers of left turning vehicles

# Results by Treatment

"Turning Vehicle Yield to Peds" symbol sign	Mixed results. This sign was not superior to the text only sign
Rectangular LED Rapid Flashing Beacons	Large increase in yielding on high-speed multilane roads
Countdown Pedestrian Signals	Increased the percentage of pedestrians that pressed the call button
Electronic NRTOR sign	Reduced driver violations as compared to the static sign

# Results by Treatment

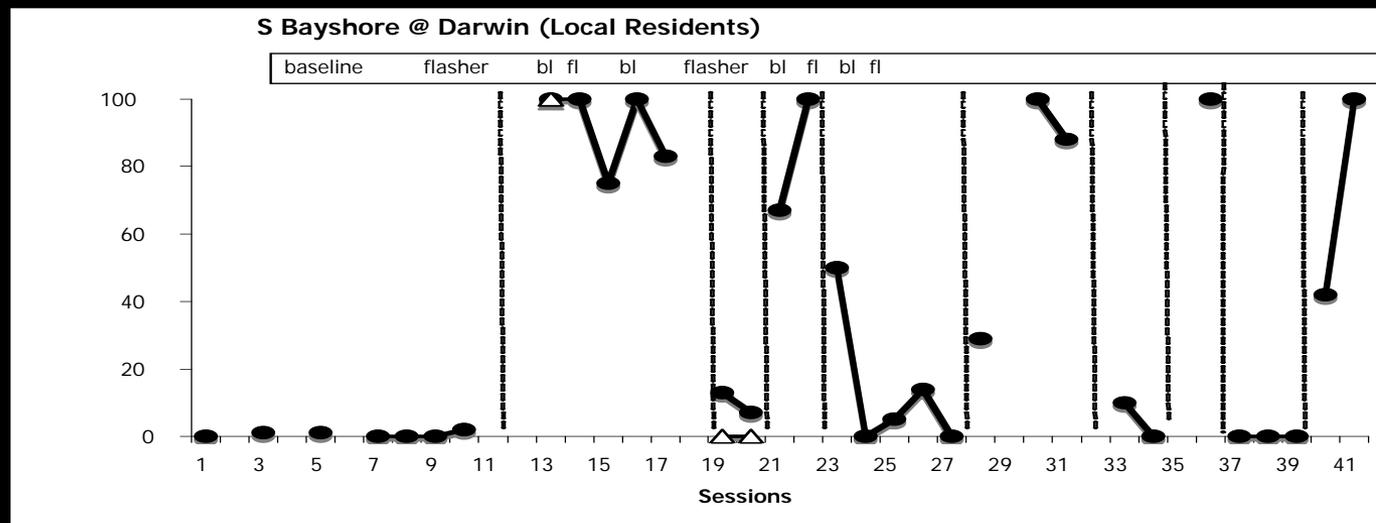
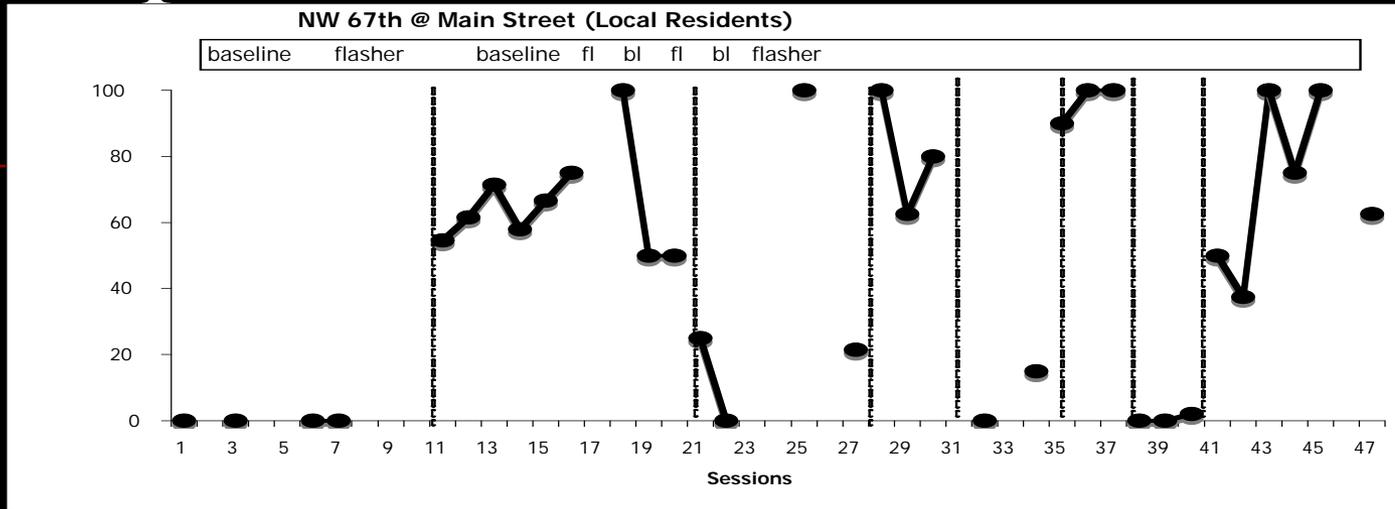
In-Street "Yield to Pedestrian Signs"	Increased the percentage of drivers yielding right-of-way but were easily damaged
Eliminate Permissive Left Turn	This treatment reduced conflicts between left turning vehicles and pedestrians

# Sample Data: Rectangular Flashing Beacon

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- Requires a button press
- Instructs pedestrian how to cross
- Confirms that it is working
- Rectangular stutter flash is very salient  
(warrants latent demand)

# Sample Data



# Sample Data: In Street Pedestrian Crossing Sign

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# Location

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- We compared placing this sign at the crosswalk line
- 20 feet in advance of the crosswalk line
- 40 feet in advance of the crosswalk line

# One vs. three signs

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- We also compared using one vs. three signs.





# Sample Results: Reduce Minimum Green Time (hot button)

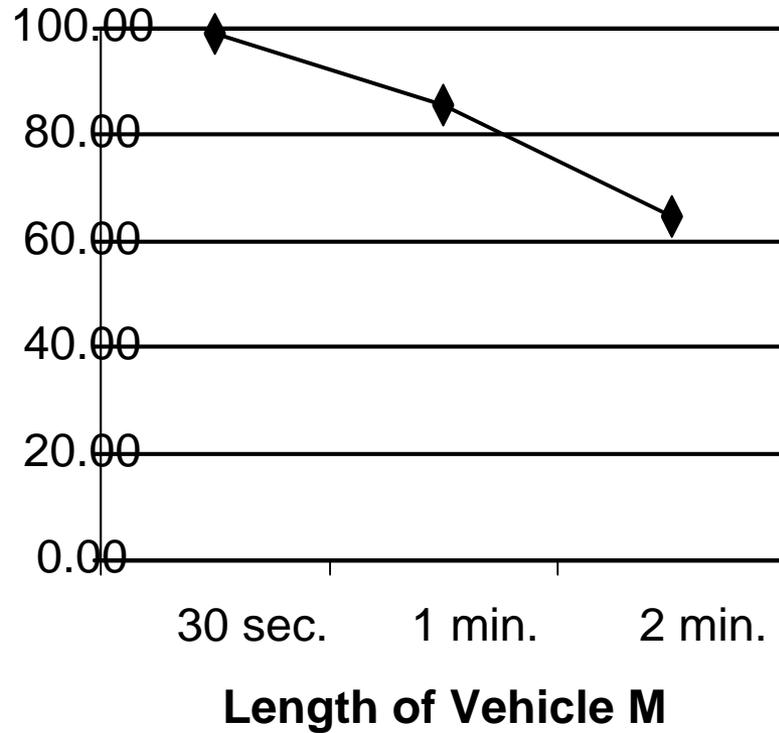
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- Reducing minimum green time in isolation mode produced improves compliance at midblock traffic signals

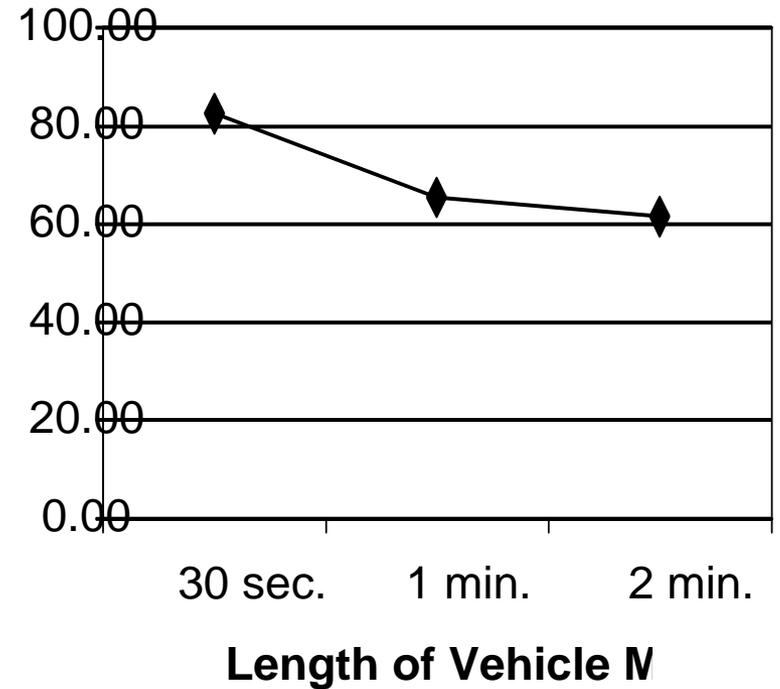


# Sample Data

**Pedestrians waiting for**



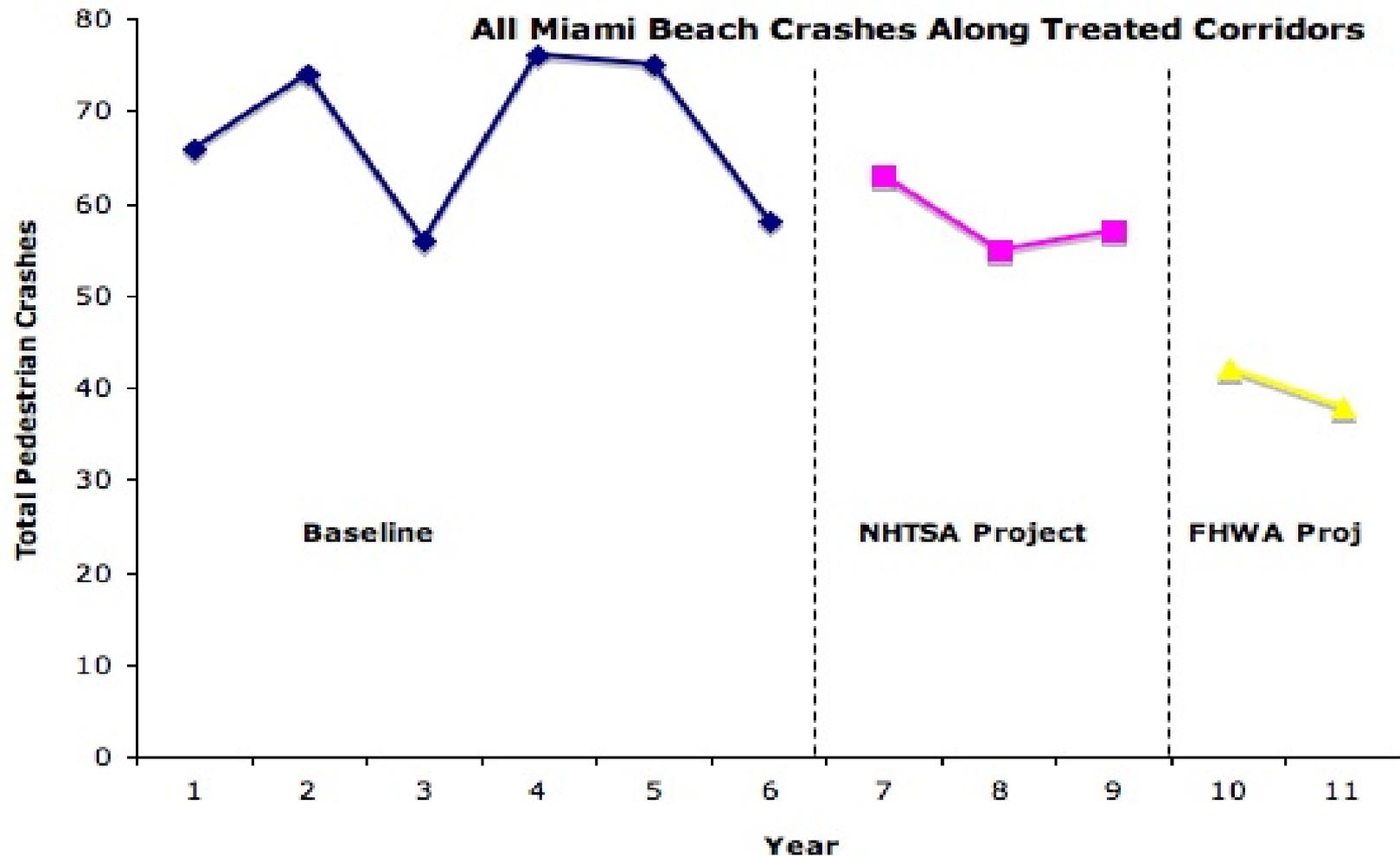
**Pedestrians waiting for**



# Crash data

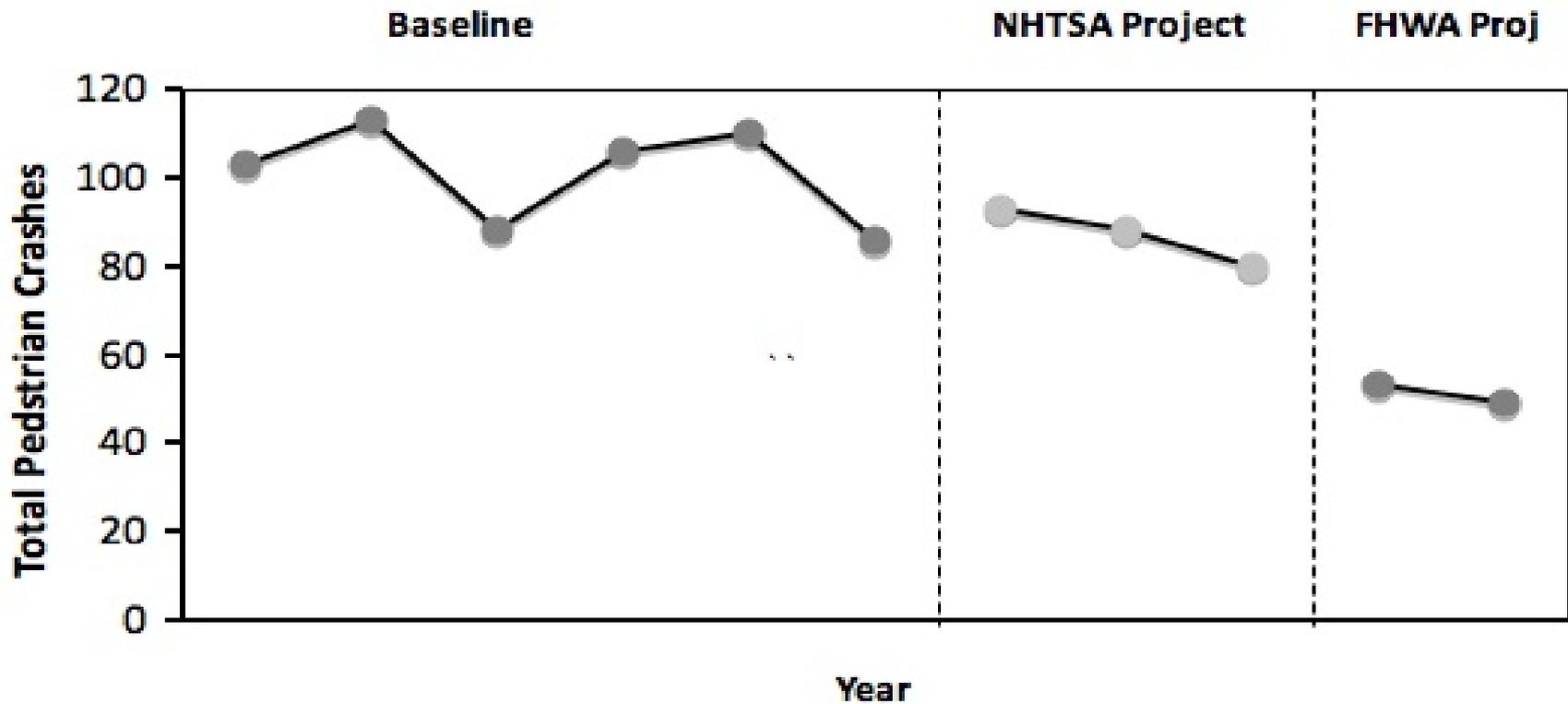
SITE	BASELINE PERIOD CRASHES PER YEAR	NHTSA STUDY PERIOD CRASHES PER YEAR	FHWA STUDY PERIOD CRASHES PER YEAR
<b>All sites combined</b>	101	87	51
Alton Road: 5 <sup>th</sup> St. - 17 <sup>th</sup> St	13.8	10	8.5
5 St: Alton Rd. - Ocean Dr.	6.5	4.6	4
Collins Ave: 5 <sup>th</sup> St. - 24 <sup>th</sup> St	18.8	20	13
141 St: Alton Rd - Pine Tree Dr	7	5.3	2
Collins Ave & Harding Av	14.3	13	9.5
NE 6th Ave: NE 141 St. - NE 151 St	7.7	8	3
NE 163 St: NW Ave - Biscayne Blvd	25.8	20.7	8

# Miami Beach Data



# All Miami-Dade Site Data

## All Miami Treated Corridors



# Statistical Analysis

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- The statistical analysis used in this study was based on the general time-series intervention regression modeling approach. This approach accommodates both independent and autocorrelated error structures encountered in time-series intervention designs of the type used in behavioral research.

# Results of Statistical Tests

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- The overall analysis of the total data combined from all treated corridors estimates a drop in level of approximately 15 crashes ( $p = .06$ ) between the baseline phase and the NHTSA phase, and a large additional drop in level of approximately 36 crashes ( $p = .003$ ) from the NHTSA phase to the FHWA phase. These changes from the baseline level of 101.51 correspond to percentage reductions of 15% and 50% for NHTSA and FHWA, respectively.

END

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