Trends in Pedestrian, Bicyclist and Motorist Behaviors

Sources & Methods

- Comparison of two studies:

2003 & 2004 to 2012 & 2013

Totals: Pedestrian	1,265 & 1,525	**+21%**
Bicyclists	929 & 1,433	**+54%**

- All long form police crash reports for Orange, Seminole & Osceola Counties
- Crash typing criteria developed by FHWA

Generalized Crash Types

2012 & 2013 Study

Motorist Turning = **17%**

Motorist Failure to Yield, Not Turning = **10%**

Pedestrian Mid-Block = **21%**

Ped At Signal = **6%**

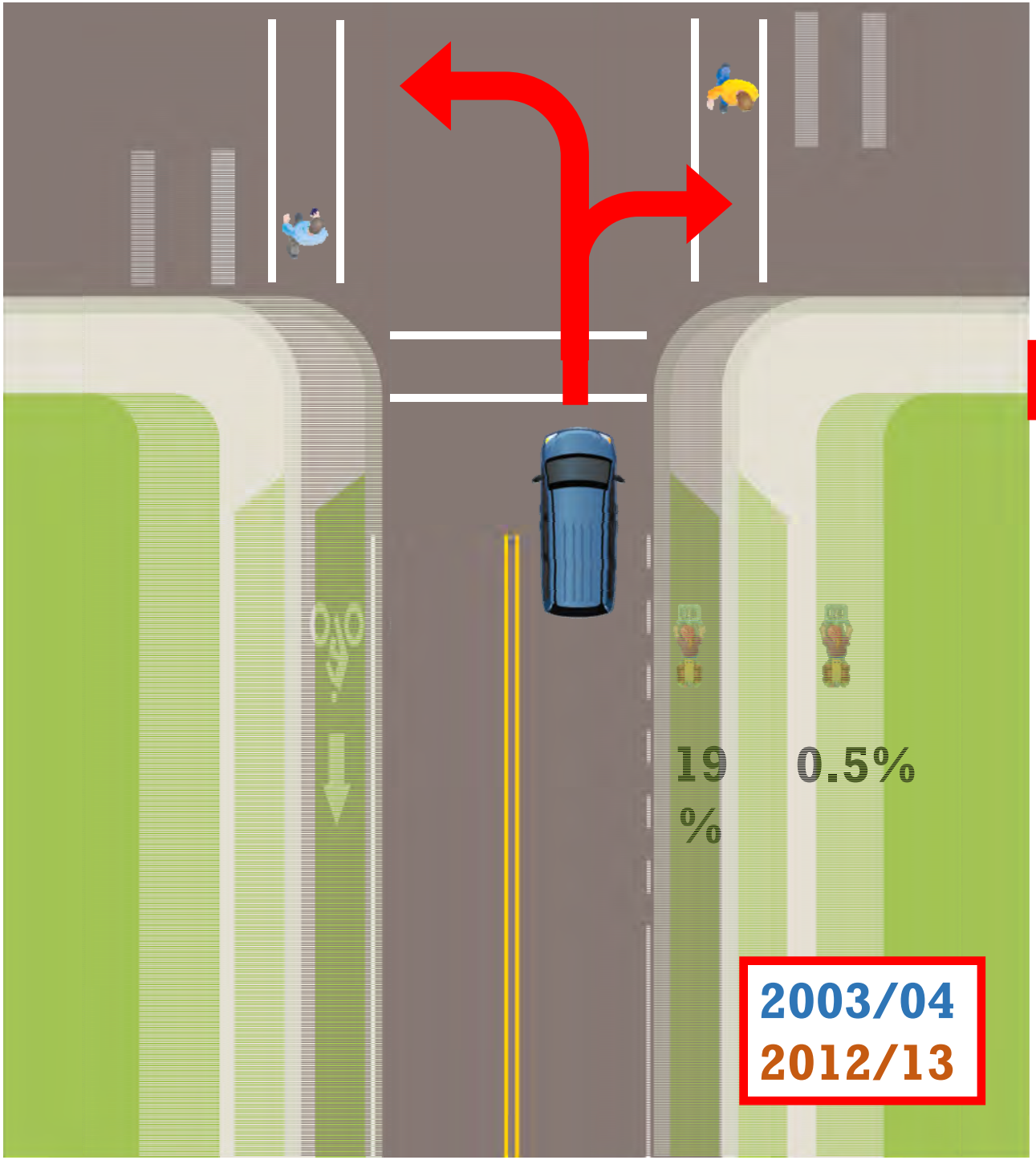
Walking Along Road = **6%**

Parking Lots, Driveways, Other = **25%**

Unusual/Other = **19%**

Changes in Pedestrian Crash Types

- Comparing detailed crash typing of long form reports from 2003/04 and 2012/13
- Comparing crashes along 2-lane roads and roads with 4 or more lanes
- Focus on incapacitating injuries and fatalities



Turning Motorist

All Crashes

2-Lane

26 ⟶ 62

% Change = **138%**

4 or More Lanes

52 ⟶ 193

% Change = **271%**

Incapacitating & Fatal

2-Lane

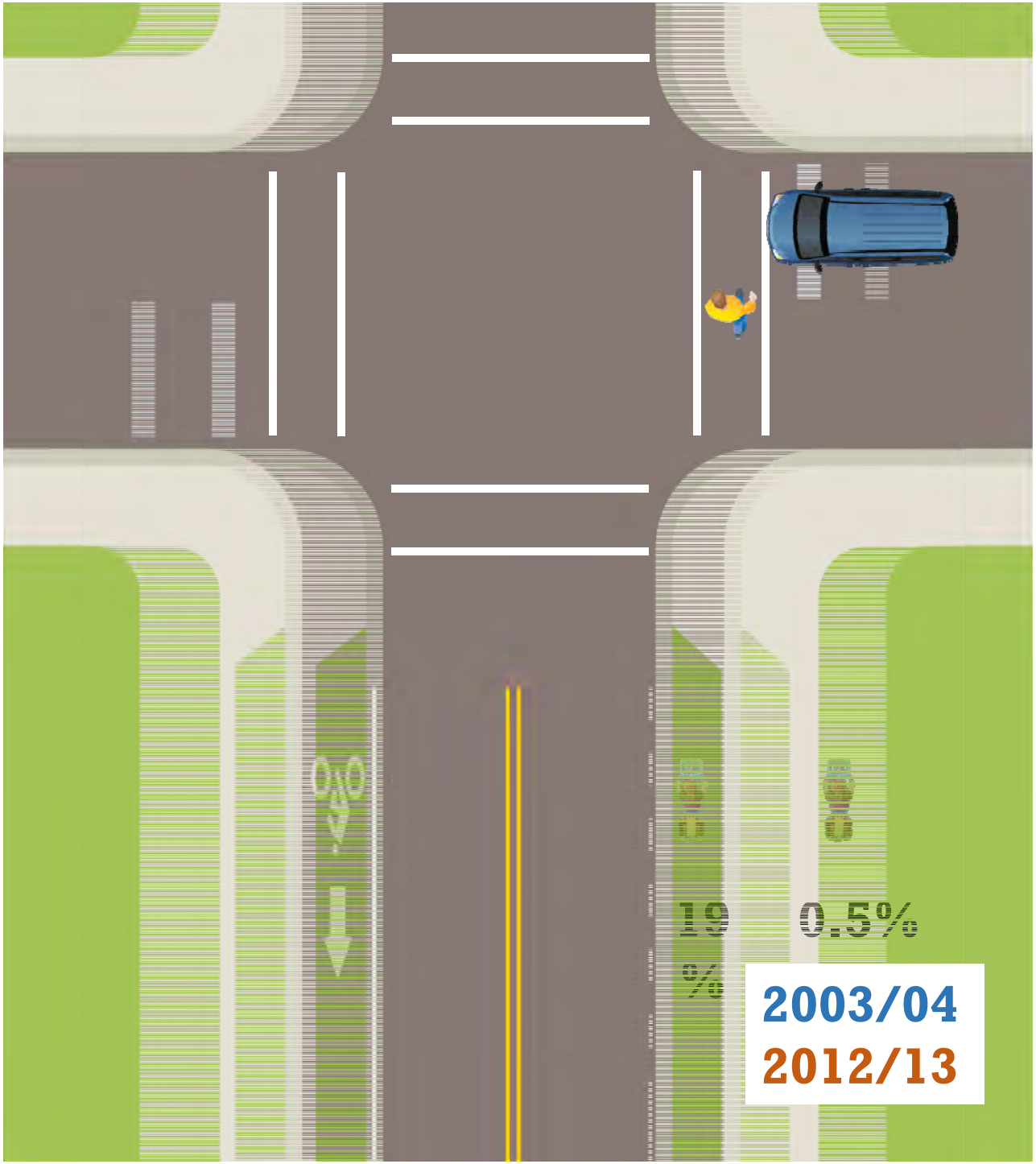
3 ⟶ 10

% Change = **233%**

4 or More Lanes

9 ⟶ 23

% Change = **156%**



Motorist Drive-Out

All Crashes

2-Lane

53 → 21

% Change = **-60%**

4 or More Lanes

52 → 34

% Change = **-35%**

Incapacitating & Fatal

2-Lane

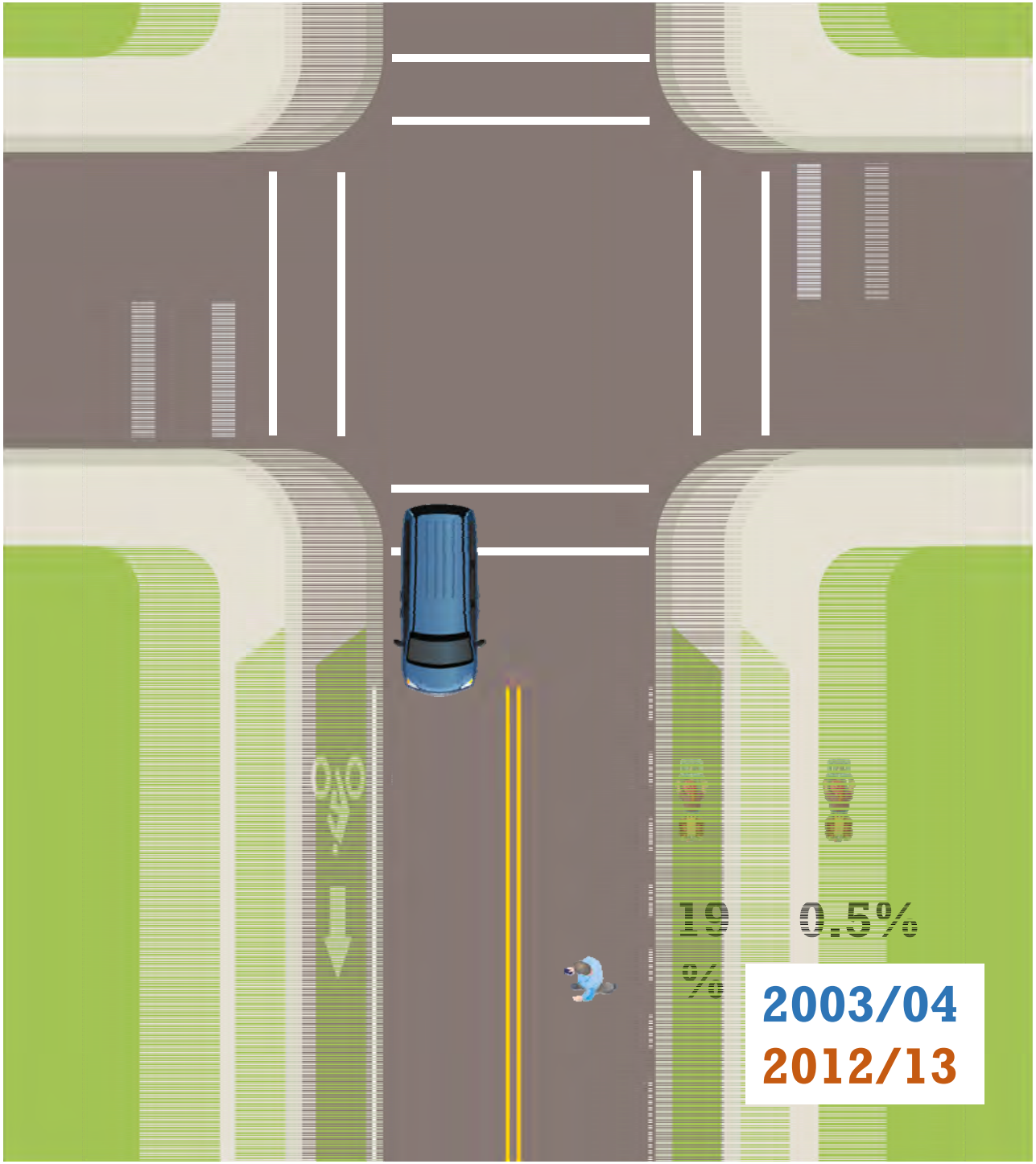
6 → 2

% Change = **-67%**

4 or More Lanes

19 → 9

% Change = **-53%**



Pedestrian Walk-Out – Mid-Block

All Crashes

2-Lane

98 → 82

% Change = **-16%**

4 or More Lanes

202 → 231

% Change = **14%**

Incapacitating & Fatal

2-Lane

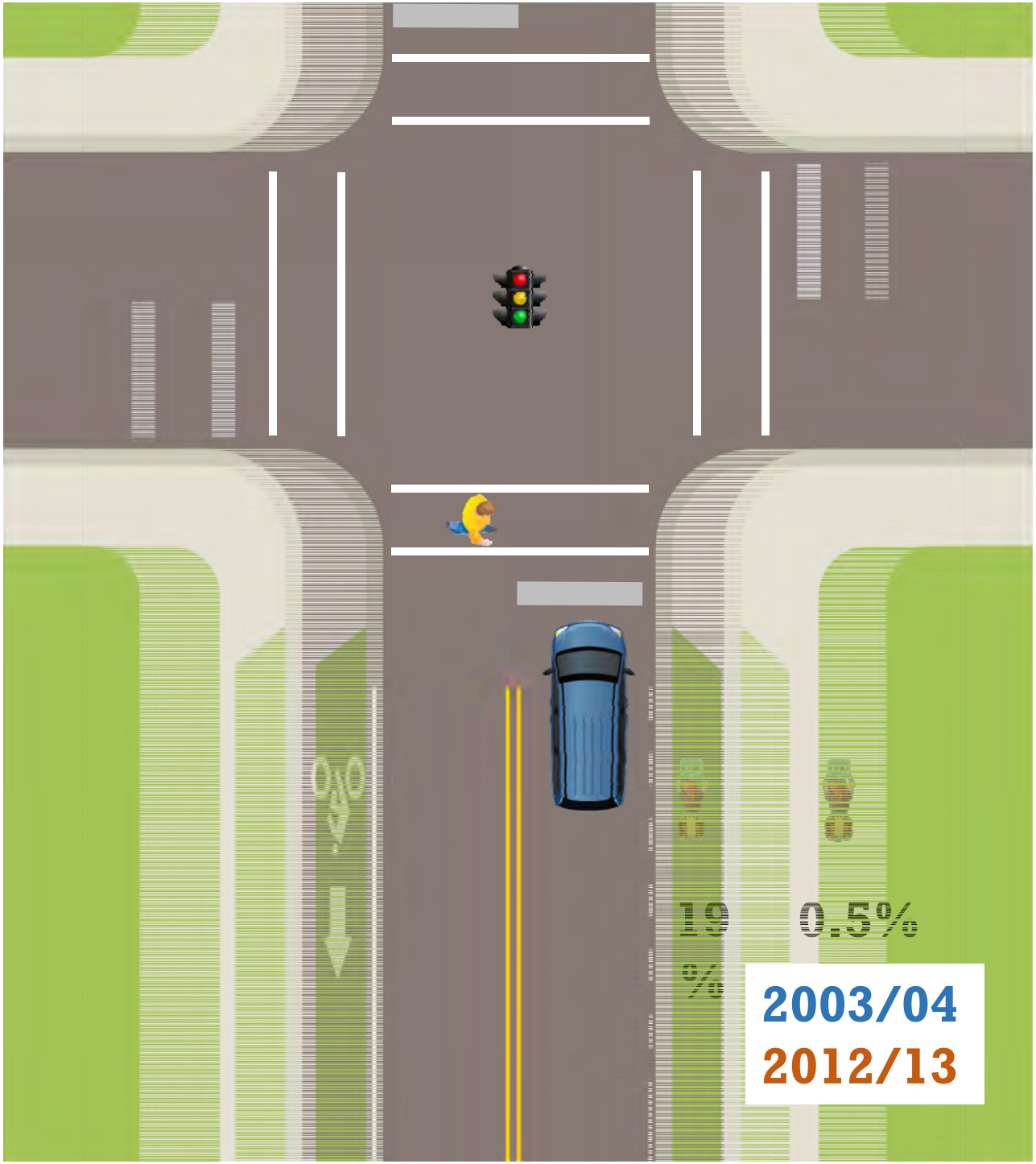
29 → 17

% Change = **-41%**

4 or More Lanes

100 → 108

% Change = **8%**



Pedestrian Walk-Out – Signal

All Crashes

2-Lane

4 → 10

% Change = **43%**

4 or More Lanes

45 → 50

% Change = **11%**

Incapacitating & Fatal

2-Lane

1 → 2

% Change = **100%**

4 or More Lanes

16 → 15

% Change = **-6%**

Generalized Crash Types
2012 & 2013 Study

Motorist Crossing or Turning = **57%**

Bicyclist Crossing or Turning = **15%**

Motorist Overtaking = **6%**

Wrong-way Bicycling = **6%**

Parking Lots, Driveways, Other = **11%**

Motorist Overtaking, Daytime, Cyclist in Travel Lane, Injury Crash = **1%**

Motorist Overtaking, Daytime, Cyclist in Travel Lane, Incapacitating Injury = **0.2%*** (*None fatal)

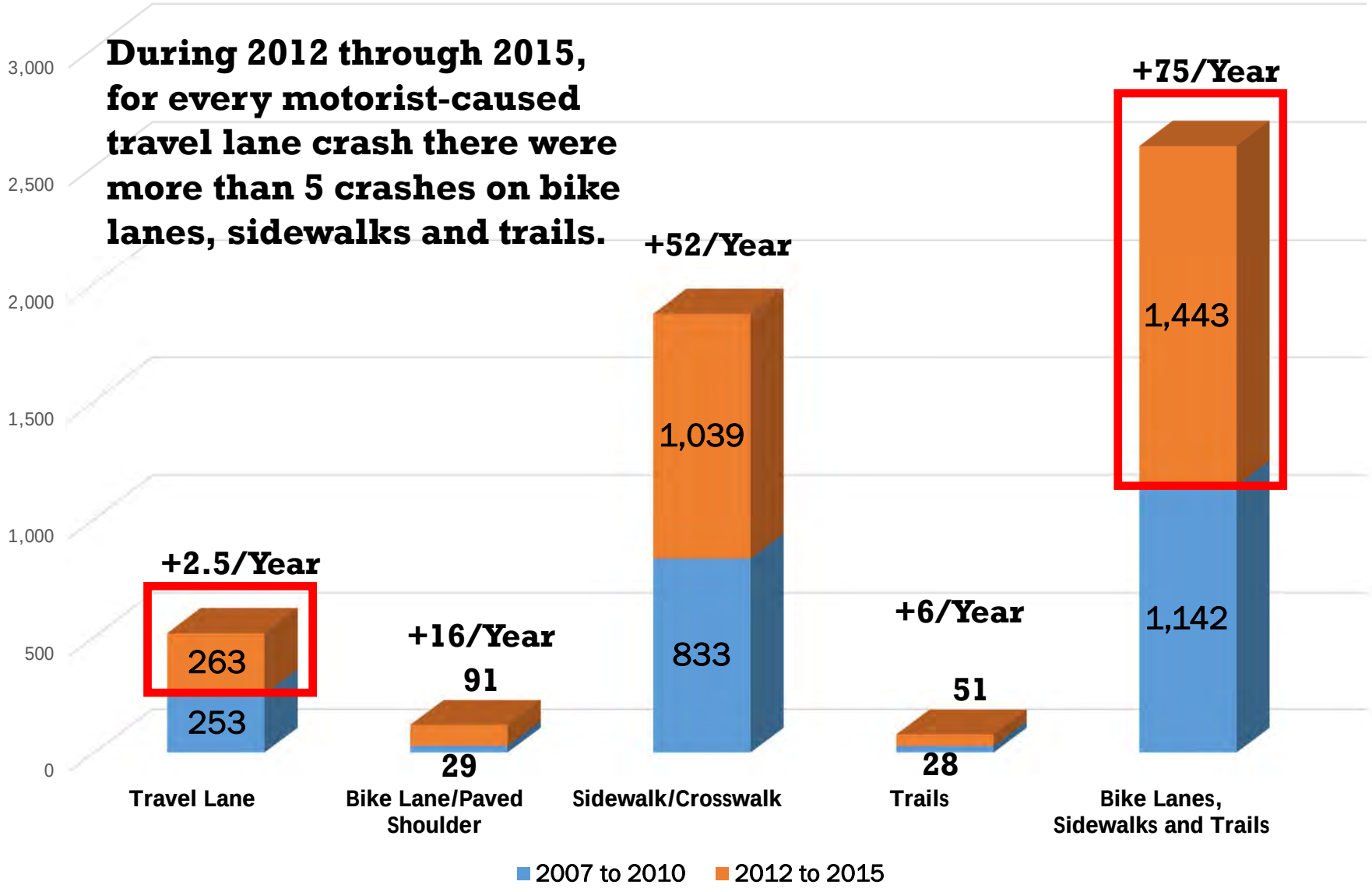
Crash Types Relevant to Bike Lanes

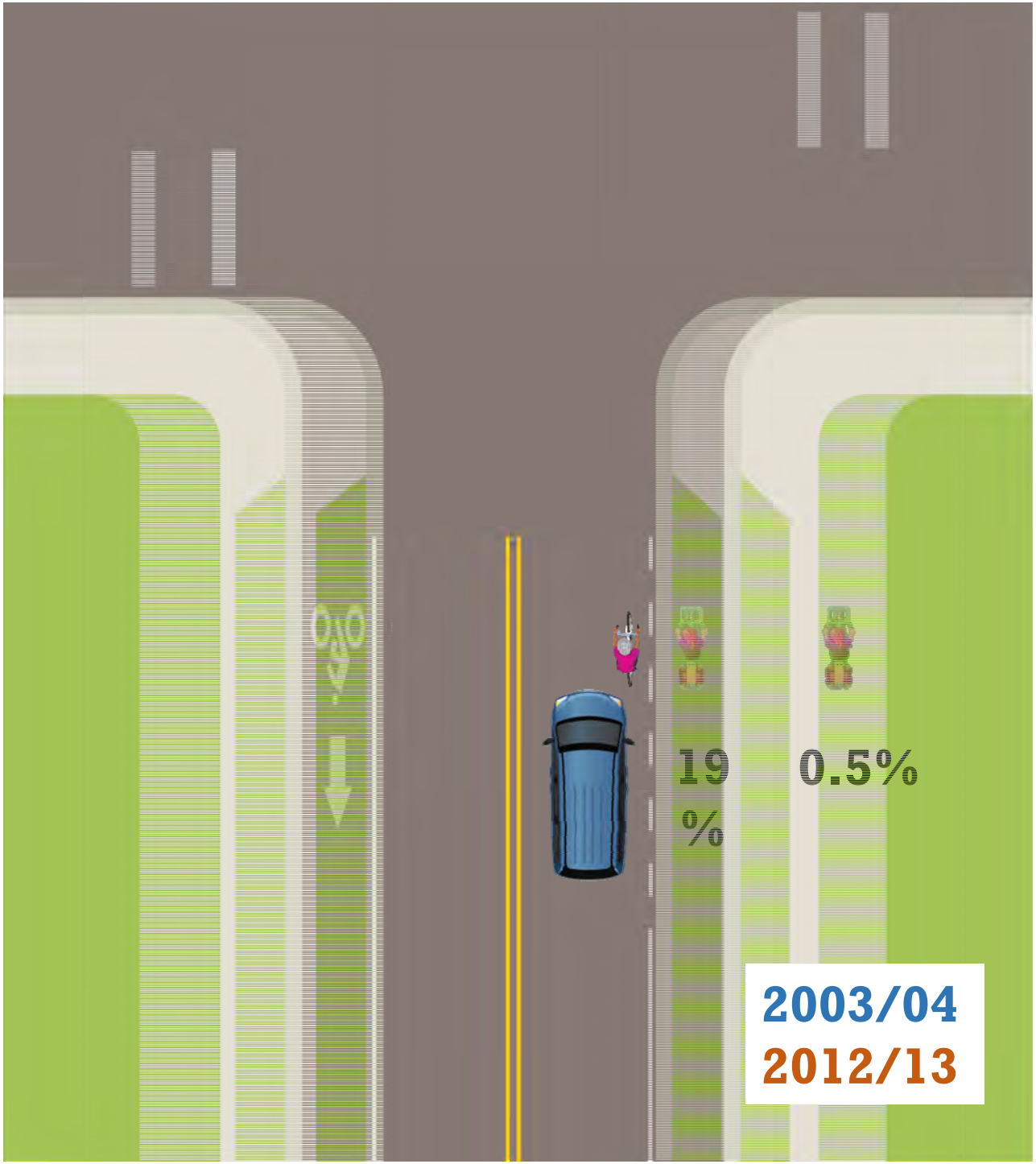
- Do bike lanes or paved shoulders improve motorist and/or bicyclist behavior?

Crash Types Relevant to Bike Lanes

- Comparing detailed crash typing of long form reports from 2003/04 and 2012/13
- Crashes on arterials and collectors
- Comparing crashes on travel lanes, bike lanes & sidewalks
- ~ 500 miles of bike lanes & paved shoulders; ~1,000 miles without

Motorist-Caused Bike Crashes by Bicyclist Position
Orlando Metro Area





Overtaking Motorist

Travel Lane

50 → 40

% Change = **-20%**

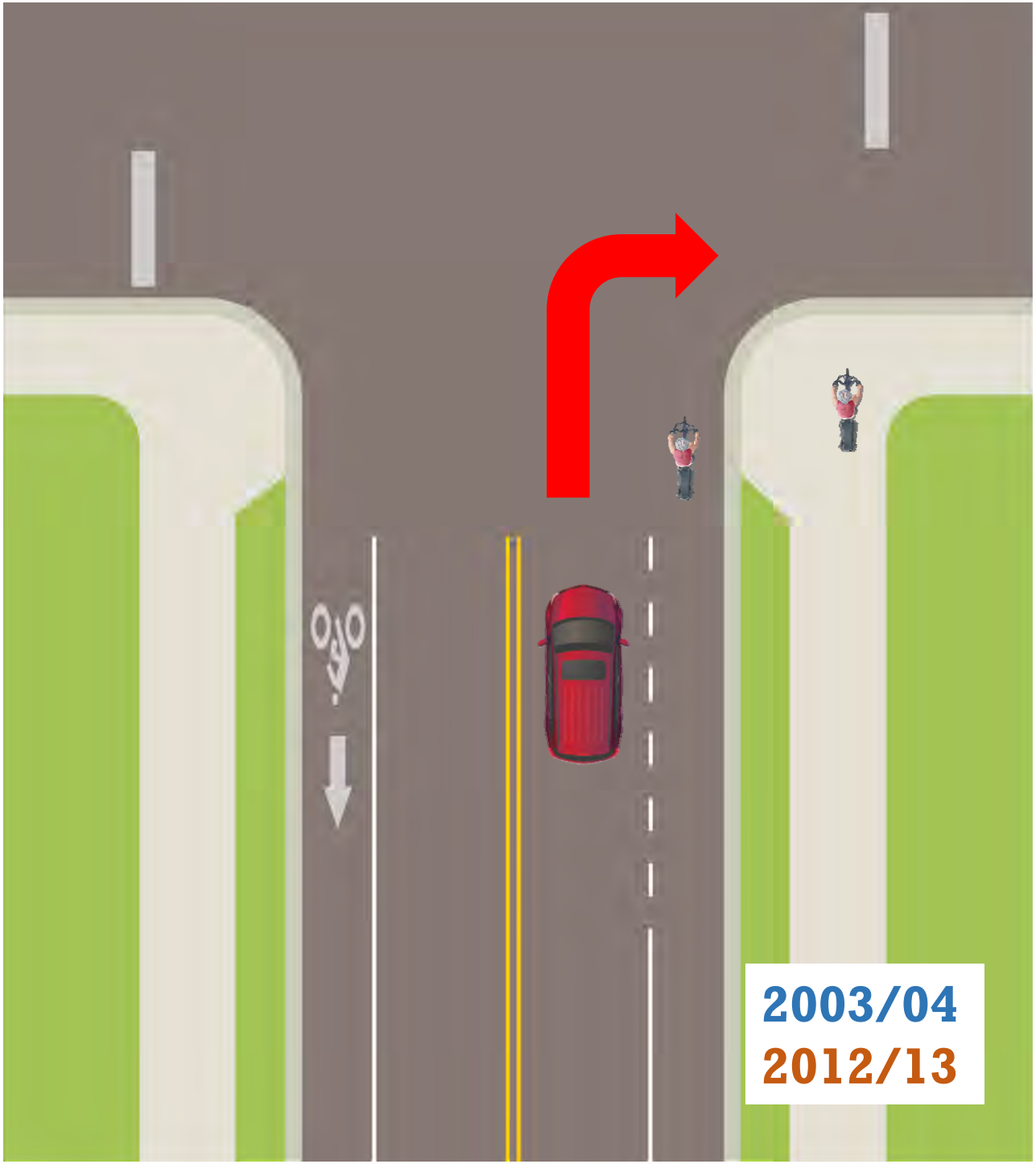
Bike Lane or Paved Shoulder

2 → 25

% Change = **1150%**

Per Centerline Mile Ratio: Bike Lane to Travel Lane

= **1.2**



Right Hook

Travel Lane

4 → 4

% Change = **0%**

Bike Lane or Paved Shoulder

2 → 19

% Change = **850%**

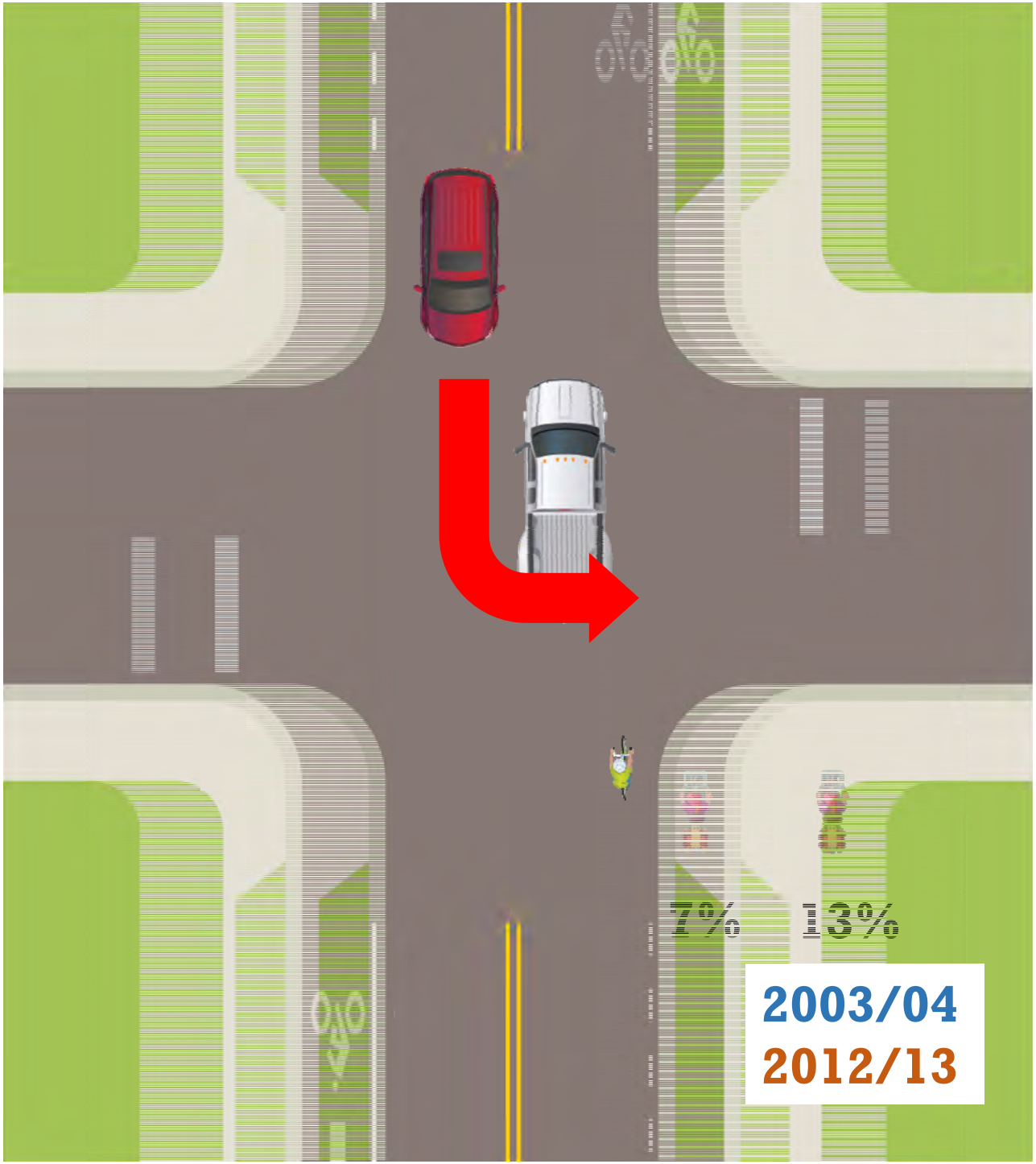
Sidewalk or Path

20 → 44

% Change = **120%**

Per Centerline Mile Ratio: Bike Lane to Travel Lane

= **9.4**



Left Cross

Travel Lane

8 → 8

% Change = **0%**

Bike Lane or Paved Shoulder

1 → 9

% Change = **800%**

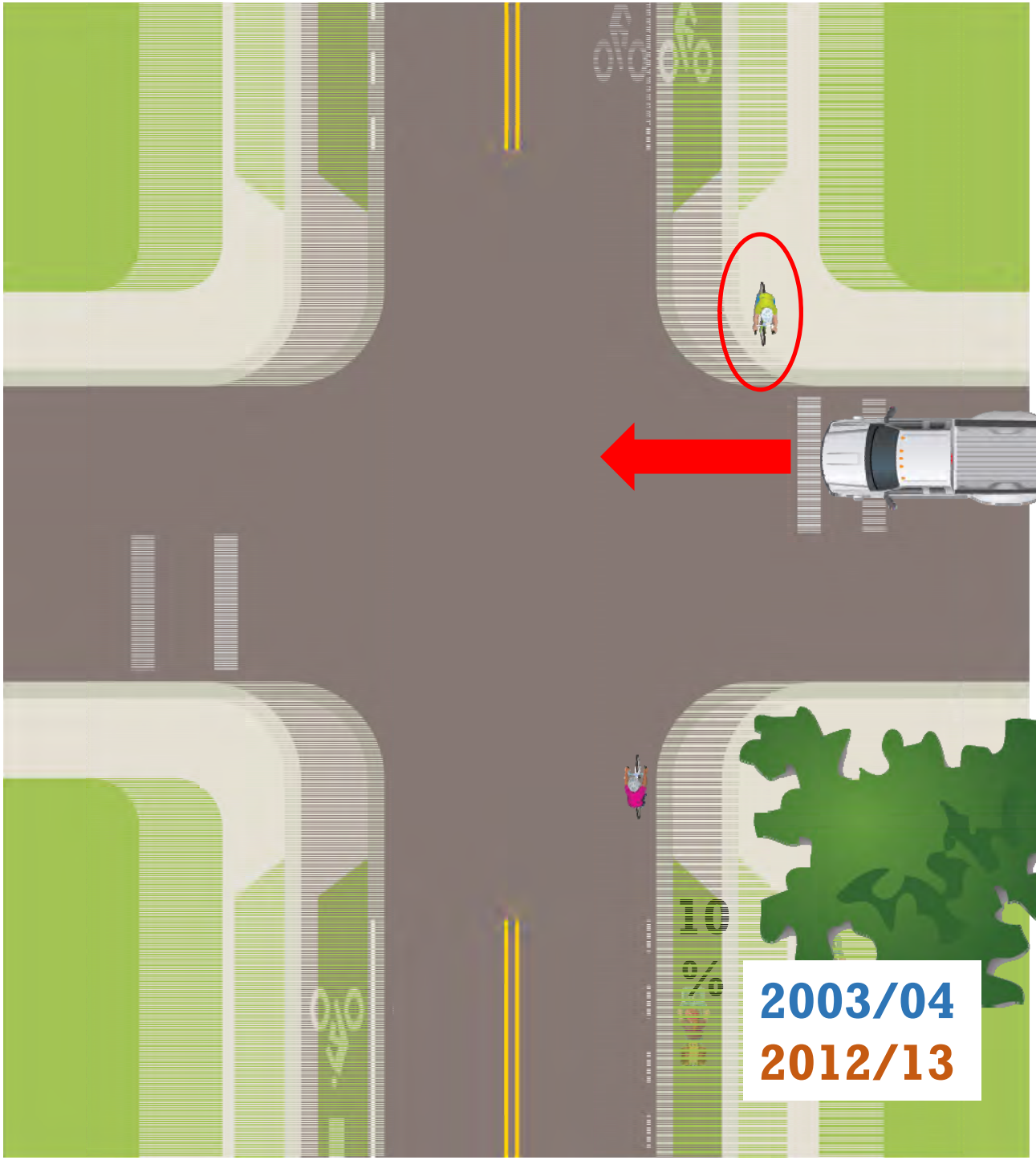
Sidewalk or Path

6 → 22

% Change = **267%**

Per Centerline Mile Ratio: Bike Lane to Travel Lane

= **2.2**



Drive Out

Travel Lane

10 → 7

% Change = **-30%**

Bike Lane or Paved Shoulder

4 → 12

% Change = **200%**

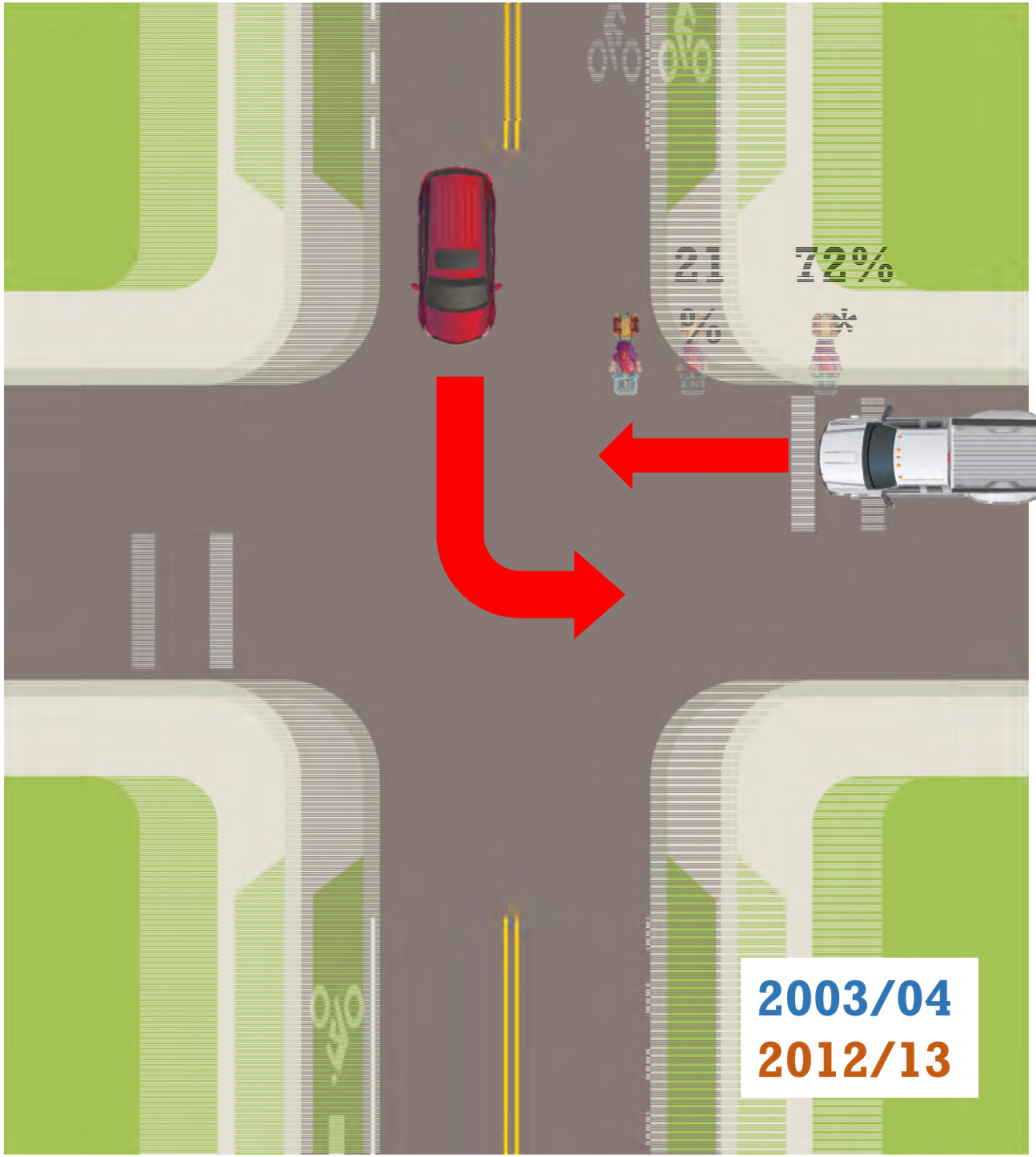
Sidewalk or Path

153 → 491

% Change = **221%**

Per Centerline Mile Ratio: Bike Lane to Travel Lane

= **3.4**



Wrong Way Cyclist

Travel Lane

68 → 23

% Change = **-66%**

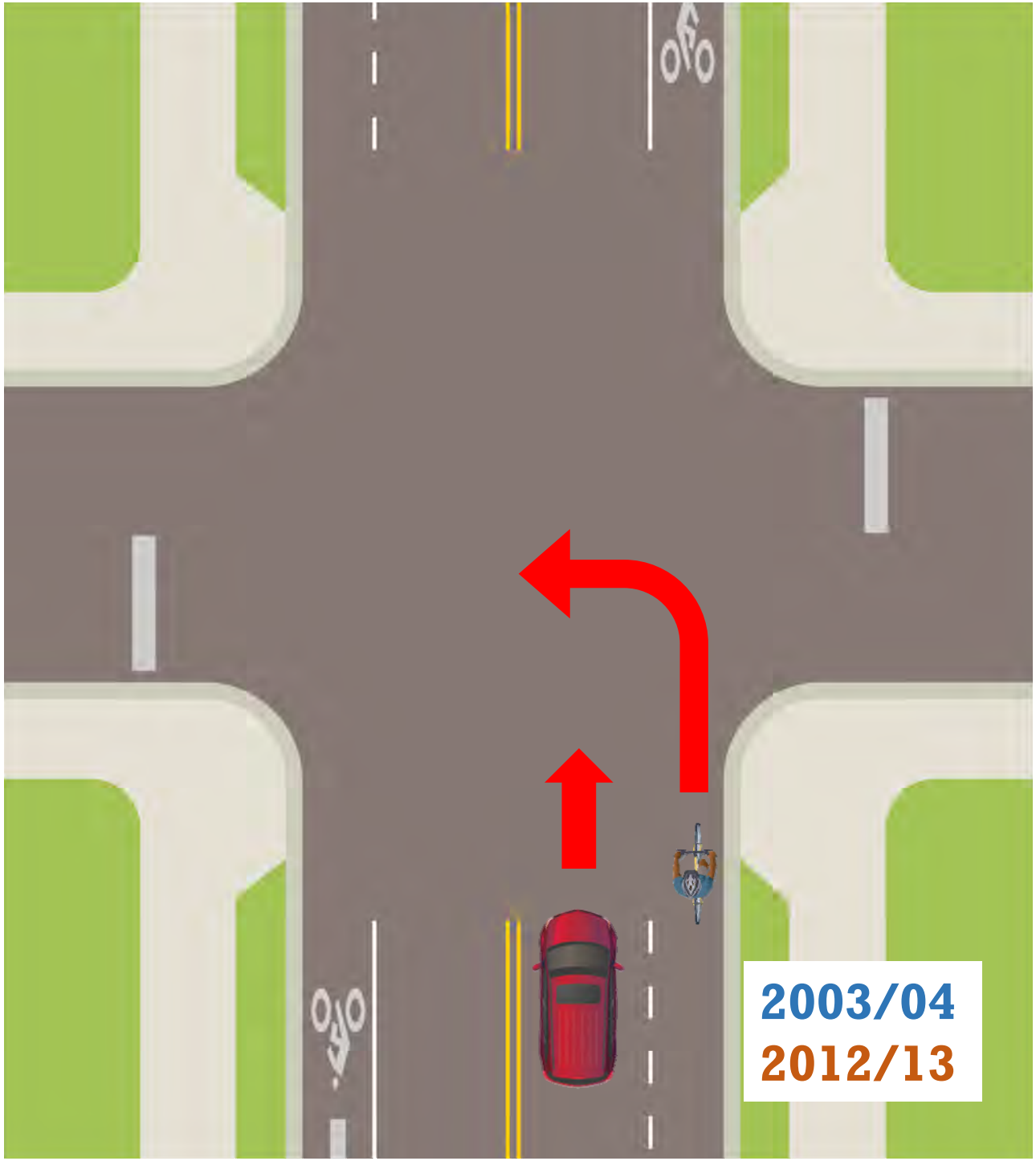
Bike Lane or Paved Shoulder

11 → 26

% Change = **136%**

Per Centerline Mile Ratio: Bike Lane to Travel Lane

= **2.2**



Left Swoop

Travel Lane

23 → 12

% Change = **-48%**

Bike Lane or Paved Shoulder

1 → 16

% Change = **1500%**

Sidewalk or Path

6 → 8

% Change = **33%**

Per Centerline Mile Ratio: Bike Lane to Travel Lane

= **2.7**

Most Effective Countermeasures

Engineering Solutions

- High-Emphasis Crossings = up to 22% (36% F&I)
- Speed Reduction = up to 28% (64% F&I)
- Roadway Lighting = up to 12% (21% F&I)
- Parking Lot Design Improvements = up to 19% (8% F&I)

Most Effective Countermeasures

Education & Enforcement Solutions

- Pedestrian Defensive Walking Strategies
  = up to 84% (80% F&I)
- Motorist Education & Enforcement Strategies
  = up to 88% (89% F&I)

Most Effective Countermeasures

Engineering Solutions

- Speed Reduction
  = up to 12% (36% F&I)
- Roadway Lighting
  = up to 4% (10% F&I)

Most Effective Countermeasures

Education & Enforcement Solutions

- Bicyclist Defensive Driving Strategies
  = up to 82% (79% F&I)
- Motorist Education & Enforcement Strategies
  = up to 59% (47% F&I)

MetroPlanOrlando.org | (407) 481-5672

250 S. Orange Ave., Suite 200, Orlando, FL 32801