



## Two-Stage Left Turn Queue Box Performance

THE CITY OF COLUMBUS  
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Presenting today:

THE CITY OF COLUMBUS CARPENTER MARTY

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Director of Traffic & Planning Services



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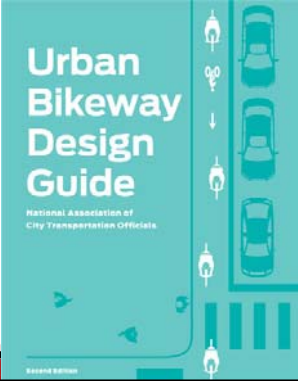


**Drew Laurent**  
Planner

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# Urban Bikeway Design Guide

National Association of City Transportation Officials



Second Edition

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## What Is A Turn Queue Box?






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## How To Use A Turn Queue Box




Curb Track Buffer Configuration




Parking Lane Configuration




Crossover Sidewalk Configuration  
When curb cut, left turn lane is on crossing, and the right turn lane is on the sidewalk, provides opportunity for queue box.



Bike Box Configuration  
When curb cut, left turn lane is on crossing, and the right turn lane is on the sidewalk, provides opportunity for queue box.



Intersection with Parking Lane Configuration



Intersection "Curbless" Sidewalk Configuration

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## Columbus, Ohio Installations



LEGEND  
● STUDY INTERSECTIONS

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TWO-STAGE TURN QUEUE BOX STUDY INTERSECTIONS  
SPRING STREET

### Slide 3

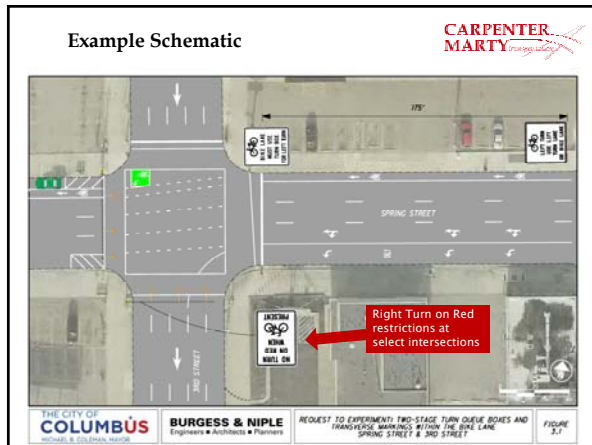
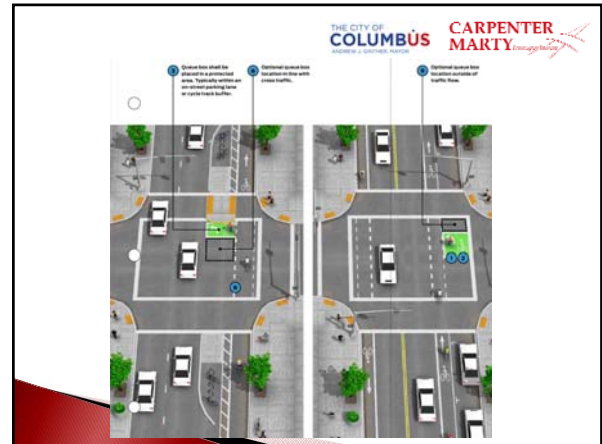
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**DL2** NACTO cover page  
Drew Laurent, 4/14/2017

### Slide 5

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**DL1** get rid of video, add picture of turn box from NACTO site  
Drew Laurent, 4/14/2017



### Data Collection

- 6 Collection Periods
- 24 hours of video per intersection
- Collection Schedule
  - 1: Before Installation
  - 2: Immediately After Installation
  - 3: One Month After Installation
  - 4: Three Months After Installation
  - 5: Nine Months After Installation
  - 6: Twelve Months After Installation
- Installation Delays - Schedule Changes
- Currently through Collection 4

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### Data Collection

Year	Survey Measurement	Site Name	Category	Compliance	Notes
1	0222	Southbound Thru	NO	NO	
2	0309	Northbound Thru	NO	NO	Control was going the wrong way of a one way street
3	0207	Southbound Thru	NO	NO	
4	0223	Southbound Thru	NO	NO	
5	0227	Southbound Thru	NO	NO	Control ran a red light
6	0208	Southbound Right	NO	NO	
7	0228	Southbound Thru	NO	NO	
8	0227	Southbound Thru	NO	NO	
9	0201	Southbound Thru	NO	NO	
10	0123	Southbound Thru	NO	NO	
11	0129	Southbound Thru	NO	NO	
12	0227	Southbound Thru	NO	NO	
13	0227	Southbound Thru	NO	NO	
14	0227	Southbound Thru	NO	NO	
15	0201	Southbound Thru	NO	NO	
16	0125	Southbound Right	NO	NO	Control didn't stop at red light before turning
17	0125	Southbound Thru	NO	NO	
18	0129	Southbound Left	NO	NO	
19	0129	Southbound Thru	NO	NO	Control ran a red light
20	0127	Southbound Thru	NO	NO	
21	0127	Southbound Thru	NO	NO	
22	0127	Southbound Right	NO	NO	
23	0129	Southbound Thru	NO	NO	Control ran a red light
24	0125	Southbound Thru	NO	NO	
25	0126	Southbound Thru	NO	NO	
26	0126	Southbound Thru	NO	NO	
27	0125	Southbound Thru	NO	NO	
28	0125	Southbound Thru	NO	NO	
29	0122	Southbound Thru	NO	NO	
30	0122	Southbound Thru	NO	NO	

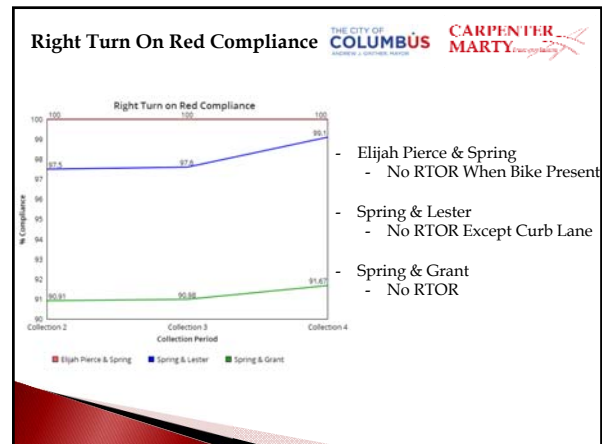
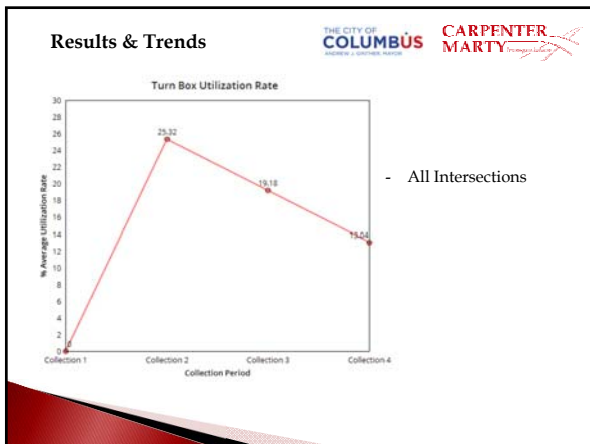
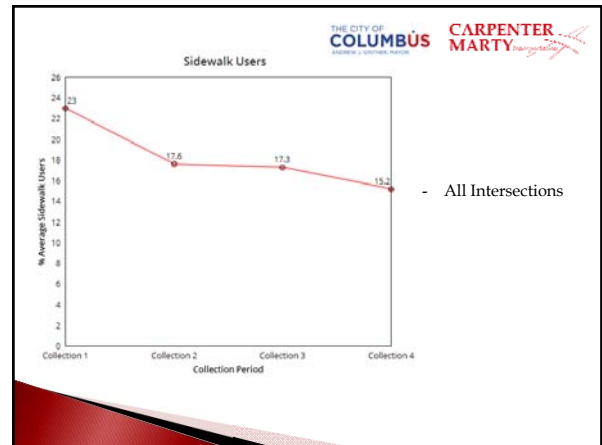
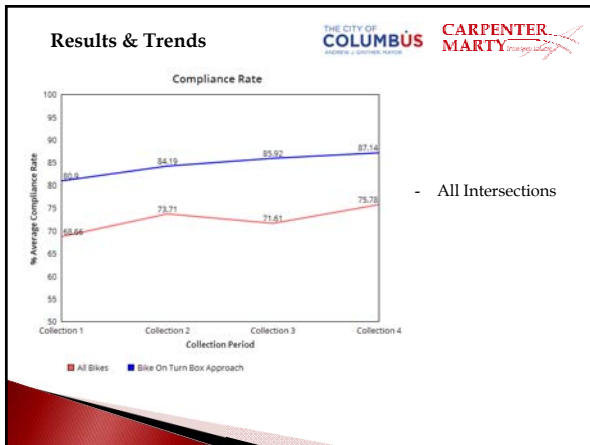
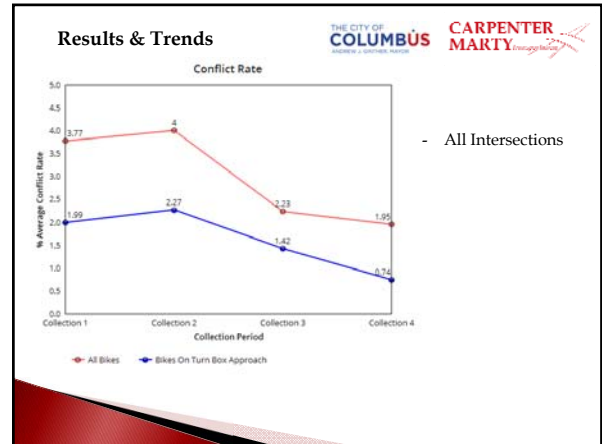
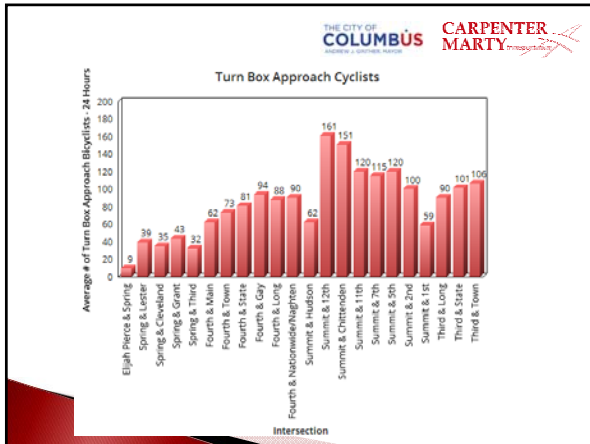
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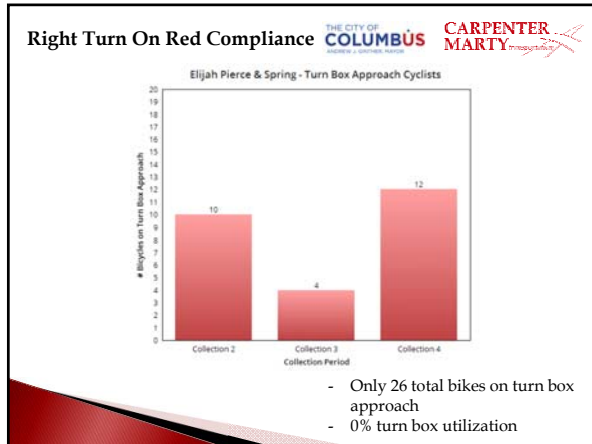
### Evaluation

- Conflict Rates
- Compliance Rates
- Right Turn on Red Compliance
- Noted Observations
- Many Iterations of Analysis

Collection #	Street	Direction	Date	# of Data Periods	# of Observations	Proportion Making Turn Red Measurement	Proportion Complying on Red	Proportion Complying on All	Proportion Complying on All	# of Conflicts	Right Turn on Red
1	Summit	Northbound	02/22/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
2	Summit	Southbound	02/22/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
3	Summit	Northbound	03/09/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
4	Summit	Southbound	03/09/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
5	Summit	Northbound	02/07/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
6	Summit	Southbound	02/07/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
7	Summit	Northbound	02/23/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
8	Summit	Southbound	02/23/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
9	Summit	Northbound	02/27/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
10	Summit	Southbound	02/27/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
11	Summit	Northbound	02/01/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
12	Summit	Southbound	02/01/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
13	Summit	Northbound	01/23/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
14	Summit	Southbound	01/23/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
15	Summit	Northbound	01/29/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
16	Summit	Southbound	01/29/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
17	Summit	Northbound	01/27/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
18	Summit	Southbound	01/27/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
19	Summit	Northbound	01/25/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0
20	Summit	Southbound	01/25/16	1	100	0.00%	0.00%	0.00%	0.00%	0	0

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**Anecdotal Observations** THE CITY OF COLUMBUS CARPENTER MARTY

- Better Turn Box usage takes place Downtown rather than north OSU Campus area
- Joggers use bike lanes
- Most conflict comes from cyclists using sidewalk & quickly changing lanes in roadway
- Cyclists take fastest path from A to B

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**Preliminary Conclusions**

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**QUESTIONS?**