Fourth and Summit Complete Street Project
Agenda

- Introductions
- History
- Challenges
- Design and Innovation
- Implementation
- Engagement
- Evaluation
- Lessons Learned
Introductions

- **Brian Hagerty, PE**  
  Project Manager, Stantec

- **Eric Lowry, AICP**  
  Project Planner, Stantec

- **Richard Ortman, PE**  
  Project Manager, City of Columbus

- **Catherine Girves**  
  Director, YayBikes!

- **Daniel Moorhead, PE**  
  Bicycle program engineer, City of Columbus
History

F/S Corridor historically

- When were these streets converted to one way?
- What was the neighborhood like prior to conversion?
History

Existing Condition

- **Speeding**
  85th percentile: 35 to 45 mph

- **Crashes**
  Several high crash rate intersections

- **Poor Sight Distance**

- **Un-uniform Corridor**

- **High Multiple Threat Risk**
History

Weinland Park CMP

- Started in 2008
- Balance the Modes
  “Streets are for moving people, not just cars”
- Emphasis on Public Engagement
- Focus: Building Trust, Improving Relationships
Challenges

Problem: A Highway Runs Through It
Challenges

Problem: A Highway Runs Through It

- US-Highway 23
- Federal Aid Primary Route
- National Network (for Trucks)
- Arterial Corridor
Challenges

Problem: A Highway Runs Through It

- US-Highway 23
  ODOT/FHWA Involvement

- Federal Aid
  Primary Route
  One 12’ Travel
  Lane Req’d

- National Network
  (for Trucks)
  One 12’ Travel
  Lane Req’d

- Arterial Corridor
  Satisfy Traffic Engineers
Challenges
Traffic Modeling, 2010-2012

Focus of Review
Moving Cars
Challenges
Traffic Modeling, 2010-2012

Focus of Review
Moving Cars
(Bikes and Pedestrians don’t count)
Challenges
Traffic Modeling, 2010-2012

- Is Minimum LOS Acceptable?
- Is Congestion a Problem?
- Capacity and Growth Rates?
- Mode Shift and Growth Rates?
- Design Year?
Challenges

Traffic Modeling, 2010-2012

How we got approval:

- Constrained model
- 20- and 12-year design years
- Minimum LOS
- Adjusting design as needed
Design and Innovation

Preliminary Alignment Plan

Fourth and Summit Complete Streets Project — FRA-23-12.24

OTECS 2015
Design and Innovation

Preliminary Alignment Plan

- Retrofits: Almost everything is a special case
- Design manuals don’t address special cases
- Helps Staff See the “Big Picture”
Design and Innovation

Before
Design and Innovation
One-Way Bike Lanes

After
Design and Innovation
Fourth and 670 WB

Before

THE CITY OF COLUMBUS
MICHAEL B. COLEMAN, MAYOR
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
Y!Hikes!
Stantec

Fourth and Summit Complete Streets Project — FRA-23-12.24
OTEC 2015
Design and Innovation
Fourth and 670 WB

Replace Photo

After

Fourth and Summit Complete Streets Project — FRA-23-12.24
OTECE 2015
Design and Innovation

Third/ Summit over 670

Before
Design and Innovation

Third/Summit over 670

Replace Photo

After

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OTE 2015
Design and Innovation

Bike Lane Parking Buffer

Before
Design and Innovation

Before
Design and Innovation

One-Way Bike Lanes
Design and Innovation
Separated, Two-Way Bike Lanes
Design and Innovation
Separated, Two-Way Bike Lanes
Bike Signals
Replace Photo
Design and Innovation
Separated, Two-Way Bike Lanes

Signalized Rights
Replace
Photo
Design and Innovation
Separated, Two-Way Bike Lanes

Unsignalized Conflicts Replace Photo
Design and Innovation
Separated, Two-Way Bike Lanes

Transit Islands Replace Photo

Fourth and Summit Complete Streets Project — FRA-23-12.24
OTECE 2015
Design and Innovation

Separated, Two-Way Bike Lanes

Signage

Replace Photo
Design and Innovation
Separated, Two-Way Bike Lanes

Signage 2
Replace Photo
Engagement

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OTEC 2015
Evaluation
National Network Safety Analysis

Volumes
- 2,400 large vehicles/day on US-23 verse
- 5,100 on SR-315, and 10,700 on I-71.

Crashes, 2011-2013:
- 209 parked car collisions, 13 involving large vehicles
- 245 sideswipe crashes, 16 involving large vehicles
Evaluation

National Network Safety Analysis

- Majority of truck traffic uses I-71 and SR-315 rather than US-23 to travel through Columbus
- Delineation of parking lanes and provision of bicycle lanes and buffers should mitigate parked car collisions
- Reduction in number of travel lanes should harmonize vehicle speeds, reduce opportunities for lane changes
- Neighborhood character of street inconsistent with wider lanes
Evaluation

Two-Stage Turn Queue Boxes Experiment

Two-stage Left Turn vs. Standard Left Turn

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OTEC 2015
Evaluation

Two-Stage Turn Queue Boxes Experiment
Evaluation

Two-Stage Turn Queue Boxes Experiment

- One year experiment
- Collect before/after video assessing:
  - User interactions at queue box
  - Compliance with turn on red prohibitions
  - Bicycle Volumes
- Potential Measures of Success
  - No increase in crash rate
  - Queue box compliance by all users
Evaluation

Protected Bicycle Lanes Evaluation Plan

Protected Bicycle Lanes (Two-way Cycle Track)
FRA-23-12.24 PID 86661
Summit Street
Evaluation Plan
Columbus Ohio

March 4, 2015
## Evaluation

### Protected Bicycle Lanes Evaluation Plan

<table>
<thead>
<tr>
<th>#</th>
<th>Location</th>
<th>Design Elements</th>
<th>Evaluation Criteria</th>
<th>Positive Indicators</th>
<th>Negative Indicators</th>
<th>Evaluation Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Entire Corridor</td>
<td>All-design elements</td>
<td>Overall and injury crashes</td>
<td>Overall decrease or stagnation of injury crashes</td>
<td>Increase in injury crashes</td>
<td>3 years before project</td>
</tr>
<tr>
<td>N/A</td>
<td>11th-13th St. Lane, Lane-Hudson</td>
<td>All-design elements</td>
<td>Levels of bicycling and walking</td>
<td>Higher levels of bicycling and walking</td>
<td>Lower levels of bicycling and walking</td>
<td>3 years before project</td>
</tr>
<tr>
<td>1</td>
<td>12th Avenue</td>
<td>Protected bicycle lane terminus</td>
<td>Bicycle-motor vehicle-pedestrian interaction at traffic signals</td>
<td>High usage of two-stage queue box and bicycle-only turn lane</td>
<td>Low usage of two-stage queue box and bicycle-only turn lane</td>
<td>October 2015 - May/Sept. 2018</td>
</tr>
<tr>
<td>2</td>
<td>Clifton Avenue</td>
<td>Signalized intersection</td>
<td>Bicycle-motor vehicle-pedestrian interaction at traffic signals</td>
<td>High usage of two-stage queue box and bicycle-only turn lane</td>
<td>Low usage of two-stage queue box and bicycle-only turn lane</td>
<td>October 2015 - May/Sept. 2018</td>
</tr>
<tr>
<td>3</td>
<td>12th Avenue</td>
<td>Signalized intersection</td>
<td>Bicycle-motor vehicle-pedestrian interaction at traffic signals</td>
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<td>October 2015 - May/Sept. 2018</td>
</tr>
<tr>
<td>4</td>
<td>Alley south of 15th Avenue</td>
<td>Alley</td>
<td>Bicycle-motor vehicle-pedestrian interaction at alleys</td>
<td>Limited conflicts at conflict; Some conflicts at alleys</td>
<td>Continued significant levels of conflict at alley leading to crashes</td>
<td>October 2015 - May/Sept. 2018</td>
</tr>
<tr>
<td>5</td>
<td>17th Avenue</td>
<td>Signalized intersection</td>
<td>Bicycle-motor vehicle-pedestrian interaction at traffic signals</td>
<td>High usage of two-stage queue box and bicycle-only turn lane</td>
<td>Low usage of two-stage queue box and bicycle-only turn lane</td>
<td>October 2015 - May/Sept. 2018</td>
</tr>
<tr>
<td>6</td>
<td>18th Avenue</td>
<td>Un-signalized intersection</td>
<td>Bicycle-motor vehicle-pedestrian interaction at traffic signals</td>
<td>High usage of two-stage queue box and bicycle-only turn lane</td>
<td>Low usage of two-stage queue box and bicycle-only turn lane</td>
<td>October 2015 - May/Sept. 2018</td>
</tr>
<tr>
<td>7</td>
<td>Lane Ave - Northwood Ave</td>
<td>Lane configuration</td>
<td>Bicycle-motor vehicle-pedestrian interaction at traffic signals</td>
<td>High usage of two-stage queue box and bicycle-only turn lane</td>
<td>Low usage of two-stage queue box and bicycle-only turn lane</td>
<td>October 2015 - May/Sept. 2018</td>
</tr>
<tr>
<td>8</td>
<td>Maynard Avenue - Clinton Street</td>
<td>Lane configuration</td>
<td>Bicycle-motor vehicle-pedestrian interaction at traffic signals</td>
<td>High usage of two-stage queue box and bicycle-only turn lane</td>
<td>Low usage of two-stage queue box and bicycle-only turn lane</td>
<td>October 2015 - May/Sept. 2018</td>
</tr>
<tr>
<td>9</td>
<td>Tompkins Street</td>
<td>Signalized intersection</td>
<td>Bicycle-motor vehicle-pedestrian interaction at traffic signals</td>
<td>High usage of two-stage queue box and bicycle-only turn lane</td>
<td>Low usage of two-stage queue box and bicycle-only turn lane</td>
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</tr>
<tr>
<td>10</td>
<td>Hudson Street</td>
<td>Protected bicycle lane terminus</td>
<td>Bicycle-motor vehicle-pedestrian interaction at traffic signals</td>
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*One instance of 24 video data collection should take place at Location #7 following a snow event during the 2015-2016 Winter Season to ascertain the impacts of snow on mid-block user position. Highlighted data collection instances overlap with the queue box experiment evaluation plan approved by FHWA.*
Evaluation

Protected Bicycle Lanes Evaluation Plan

- 3 year evaluation
- Crash Data
- Bicycle and pedestrian counts at three locations
- Video collection at 10 locations
- Leverage Queue Box experiment videos
Lessons Learned
Questions?