Downtown Mobile Non-Motorized Mobility Study

Draft Recommendations Review
July 28, 2015
Project Purpose

*To study bicycle and pedestrian safety and connectivity in Downtown Mobile and the radial connections to the Henry Aaron Loop.*
Critical Considerations

- Support economic development
- Build on previous work
- Contribute to livable, vibrant downtown
- Coordinate with Water Street study
- Develop practical solutions that directly address:
  - Fresh approach to Henry Aaron Loop
  - Safety, comfort, convenience
  - Network enhancement
  - ADA accessibility
  - Intersection improvements
  - Implementable – cost estimates, prioritization
Limits of Study
Design Workshop

4 days
3 meetings
14 stakeholder meetings
120 participants

Downtown Mobile Non-Motorized Mobility Study
ADA Assessment

Considerations:
- Curb ramp design
- Push button signal locations
- Pedestrian signal locations
- Curb ramp landing areas
- Crosswalk design
- Sidewalk Condition
ADA Assessment – What We Saw

Sidewalks
- Trip Hazards
- Obstacles
- Deferred Maintenance
- Inadequate Width
- Obstructions
ADA Assessment – What We Saw

**Ramps**
- Trip Hazards
- Missing Tactile Warnings
- Steep Slopes
- Asymmetrical Facilities
ADA Assessment – What We Saw

Push Buttons

- Inaccessible
- Short Timing Interval
- Inoperable
- Lack of Defined Crosswalks
ADA Assessment
Intersection Map

Good = 22
Fair = 61
Poor = 135

- Good: compliant
- Fair: minor compliance issues
- Poor: major compliance issues
ADA Assessment

Sidewalk Map

**Good = 24 miles**

**Fair = 16 miles**

**Poor = 13 miles**

- Good: compliant
- Fair: minor compliance issues
- Poor: major compliance issues
ADA Costs, Prioritization, Products

- Estimated Costs
  - Intersections
    - Poor ~ $2.9M
    - Fair ~ $300K
  - Sidewalks
    - Poor ~ $5.8M
    - Fair ~ $2M
  - Total ~ $11M

- Potential Prioritization Factors
  - Capital project and new (re)development
  - Adjacent to public facilities
  - Adjacent to major destinations
  - Along primary corridors
  - Other?

- Products
  - Prioritized intersection and sidewalk GIS databases
  - Intersection cut sheets (~10)
Great Street Approach

- People as priority
  - People who drive cars, walk, bike, ride transit, and live and work along/near the street
- Quality of design
- Quality of service for transportation
- Quality of life for residents and users

Make the trip as enjoyable as the destination
Average Daily Traffic (ADT)

- ADT is the total two-way traffic on a roadway over the course of one day.
What does 5,000 cars per day mean?

~ 2,500 cars in one direction per day

~ 500 cars during rush hour

~ 1 car every 12 seconds
Average Daily Traffic (ADT)

How many cars per day can the road handle?
A four-lane freeway can handle \(~70,000\) cars per day
How many cars per day can the road handle?

A two-lane city street with traffic signals and left turn lanes can handle ~15,000 cars per day
Average Daily Traffic (ADT)

How many cars per day can the road handle?

A two-lane city street with traffic signals and no left turn lanes can handle ~10,000 cars per day
Average Daily Traffic (ADT)

Based on these numbers, traffic could double and Canal Street would only need one lane in each direction.
Average Daily Traffic (ADT)

- Broad St – 12,000 to 17,000 cars per day
- Beauregard St – 8,000 to 9,000 cars per day
- Government St – 20,000 cars per day
- Dauphin St – 3,500 cars per day
Traffic Speed

30mph

- 33/45
- 78 feet to stop

50mph

- 55
- 131
- 186 feet to stop

70mph

- 77
- 295
- 372 feet to stop
Hit by a vehicle traveling at **20 MPH**: 9 out of 10 pedestrians survive.

Hit by a vehicle traveling at **30 MPH**: 5 out of 10 pedestrians survive.

Hit by a vehicle traveling at **40 MPH**: only 1 out of 10 pedestrians survives.
Arterial Speed Reduction
Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions

Before

After
Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions
Bulbouts
Parallel or Angled Parking
Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions
Bulbouts
Parallel or Angled Parking
Pedestrian Scale Lighting
Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions
Bulbouts
Parallel or Angled Parking
Pedestrian Scale Lighting
Bike lanes, Separated Bikes Lanes
Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions
Bulbouts
Parallel or Angled Parking
Pedestrian Scale Lighting
Bike lanes, Separated Bikes Lanes
Texture
Arterial Speed Reduction

Transition Zones
Roundabouts
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Bike lanes, Separated Bikes Lanes
Texture
Lateral Shifts (shorten views)
Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions
Bulbouts
Parallel or Angled Parking
Pedestrian Scale Lighting
Bike lanes, Separated Bikes Lanes
Texture
Lateral Shifts (shorten views)
Continuous Medians
Short Medians
Flush Medians
Canopy Street Trees
Traffic signal timing

Two phases, one per direction

Phase 1: eastbound/westbound
Traffic signal timing

Two phases, one per direction

Phase 2: northbound/southbound
Traffic signal timing

Two phases, one per direction

Phase 1 again: eastbound/westbound
Traffic signal timing

Cycle length – the amount of time required to serve all phases of traffic

Phase 1 + Phase 2 = Cycle length

Anywhere from 50 seconds to 180 seconds
Traffic signal timing

More complicated intersections require more phases

More phases means longer cycle length
Traffic signal timing

 Longer cycle length means more time before your phase comes up
Traffic signal timing

More delay means more lanes needed to hold cars while they wait
Roundabouts
Conflicts At a Four-Way Intersection

- 32 Vehicle to vehicle conflicts
- 24 Vehicle to pedestrian conflicts
Conflicts At Roundabouts

- 8 Vehicle to vehicle conflicts
- 8 Vehicle to pedestrian conflicts

Walkable Communities, Inc.
Burden and Wallwork, P. E.
Trends in Bicycle-Friendly Communities

- Providing ‘Stress Free’ Bikeways
  - High Quality Trails & Greenways
  - Separated & Buffered Bike Lanes
- ‘Neighborways’ – Bike Boulevards
- Encouraging a ‘bike culture’
Cities are Innovating

- New York, NY
- Seattle, WA
- Portland, OR
- Boston, MA
- Chicago, IL
- Washington, DC
- Baltimore, MD
- Memphis, TN
- Nashville, TN
- Spartanburg, SC
Context Sensitive Toolbox

Paths
Buffered Bike Lanes
Separated Bike Lanes
Colored Bike Lane
Shared Use Markings
Neighborways
Spot Improvements
Street Buffer Examples
Street Buffer Examples (cont.)
2-way, auto oriented

Key internal streets

1-way, secondary network

1-way, narrow, lowest volumes

Existing Network
Road diet, separated bike lanes

2-way, simple streets

2-way, bike lanes

2-way, bike facilities, parking

Shared street

Road diet, linear park

Proposed Network
1-Way Typical Existing
2-Way Restoration Typical
2-Way Restoration with Alternating Parking
Flush Street with Alternating Parking
Canal Street Existing
Canal Street Proposed
Broad/Canal Intersection
1. Broad St at Spring Hill Ave | multilane roundabout with protected intersections for bike facilities
2. Spring Hill Ave | Road Diet
3. Road realignment expands Unity Point Park
4. Broad St | Road Diet with protected bike facilities
5. St Louis St | Lane Diet
1. Broad St at Dauphin St | multilane roundabout with protected intersections for bike facilities
2. Dauphin St | Road Diet with two-way traffic operations
3. Road realignment creates park open space
4. Broad St | Road Diet with protected bike facilities
Spring Hill Ave | Road Diet with shared street

2 Road realignment | Creates gateway and expands park open space

3 St Francis St | Road Diet Convert to two-way street operations

4 St Michael St | Convert to two-way street operations

5 N Scott St | Convert to two-way street operations
# Intersection Level of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>AM</th>
<th>PM</th>
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<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>2035</td>
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<tr>
<td>Beauregard/Lawrence</td>
<td>B</td>
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<tr>
<td>Beauregard/Martin Luther King</td>
<td>C</td>
<td>C</td>
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<tr>
<td>Broad/St. Anthony</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Broad/St. Louis/Spring Hill</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>Broad/St. Francis</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Broad/Dauphin</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Broad/Government</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Broad/Canal</td>
<td>B</td>
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<tr>
<td>Washington/Government</td>
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<tr>
<td>Washington/Canal</td>
<td>C</td>
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Downtown Mobile Non-Motorized Mobility Study
## Signal Warrants

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Currently Signalized?</th>
<th>4-Hour Warrant Met?</th>
<th>8-Hour Warrant Met?</th>
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<tbody>
<tr>
<td>St Louis/Jackson</td>
<td>No</td>
<td>No</td>
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</tr>
<tr>
<td>St Louis/Conception</td>
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<td>No</td>
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</tr>
<tr>
<td>Dauphin/Claiborne</td>
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<tr>
<td>Dauphin/Jackson</td>
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<tr>
<td>Dauphin/Joachim</td>
<td>Yes</td>
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<td>No</td>
</tr>
<tr>
<td>Dauphin/Conception</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Government/Jackson</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
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Bike Parking

- Bike parking is an essential element in a complete multimodal transportation system
  - More likely to bike if confident they can find parking at destination
  - Less fear of theft
  - Deter locking of bikes to benches, posts, railings, trees, etc.
Types of Bike Parking

- Standard bicycle parking
- On-street corrals
- Covered parking
- Secure parking
Bike Parking Standards/Policies

- Bike parking should be easy to locate, simple to use
- Couple Downtown Alliance standards with national standards
- Consistency and Balance
- Build into ordinances/dev. regs
Final Steps

- ADA prioritization
- ADA intersection cut sheets
- Cost estimate refinement
- Report preparation
- Report adoption