Alabama Transportation Conference
February 10, 2016

Downtown Mobile
Non-Motorized Mobility Study
Movement to improve bikability and walkability in the region

The Mobile MPO Comprehensive Bicycle and Pedestrian Plan for Mobile County

Building on that we did a more detailed analysis of Mobile’s Urban Center in 2015

Project funded with Mobile MPO Planning Funds

Hired Toole Design Group

Lead: Mr. Ernie Boughman
Project Purpose

To study bicycle and pedestrian safety and connectivity in Downtown Mobile and the radial connections to the Henry Aaron Loop.
Limits of Study
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:
  - Safety, comfort, convenience
  - Network enhancement
  - ADA accessibility
  - Intersection improvements
Design Workshop

4 days
3 public meetings
14 stakeholder meetings
120 participants

Downtown Mobile Non-Motorized Mobility Study
Baseline Review

- Identified:
  - Existing Land Use Characteristics
  - Parks and Open Spaces
  - Current Zoning
  - Historic Resources
  - Key Destinations
  - Existing Bike/ped
  - Transit Service

- Reviewed Other Plans
  - New Plan for Mobile – urban design plan for economic growth
  - Public Space Action Plan – plan to develop and activate public spaces in the downtown area
Baseline Review

- Coordinated with the Water Street Complete Street Study
  - The City of Mobile hired another consultant to look at Water Street corridor
  - Consider methods to decrease traffic speeds
  - Improve safety, comfort, and mobility for pedestrians and cyclists
  - Enhance the attractiveness of the street
  - Connect the waterfront to the downtown
ADA Assessment

Considerations:
- Curb ramp design
- Push button signal locations
- Pedestrian signal locations
- Curb ramp landing areas
- Crosswalk design
- Sidewalk Conditions
ADA Assessment

- **Good** – Intersection or sidewalk segment met ADA criteria evaluated. No improvements were visibly apparent.
- **Fair** – Intersection or sidewalk segment is visually non-compliant with ADA criteria evaluated. Facility considered “passable” with minor improvements necessary to bring facility up to design standards.
- **Poor** – Intersection or sidewalk segment is visually non-compliant with ADA criteria evaluated. Facility contains major deficiencies which make it unable to be navigated by those with disabilities.
Good = 16
Fair = 40
Poor = 116

• Good: compliant
• Fair: passable
• Poor: needs improvement
ADA Assessment
Sidewalk Map

Good = 20 miles
Fair = 13 miles
Poor = 11 miles

- Good: compliant
- Fair: passable
- Poor: needs improvement
### ADA Costs

- **Plan includes:**
  - Top 10 intersections
  - Detailed recommended improvements
  - Itemized probable cost estimates

- **Estimated Costs**
  - Intersections
    - Poor ~ $3.6M
    - Fair ~ $300K
  - Sidewalks
    - Poor ~ $5.3M
    - Fair ~ $1.5M
  - Total ~ $11M
2015 was the 25 year anniversary of ADA – The federal government is placing a higher priority on ADA compliance

In response, the Mobile MPO has hired Neale Schaffer to do ADA Transition Plans for all MPO Member Governments
ADA Transition Plans

- Content (at a minimum)
  - Identify physical obstacles
  - Describe the methods to make facilities accessible
  - Specify the schedule for achieving completion (if longer than 1 year, identify steps to be taken each year but as expeditiously as possible)
  - Identify official responsible for implementation of plan
  - Estimated Cost of each modification
  - Status column to record completion date
Traffic Analysis

- Traffic data was collected and analyzed for key intersections along the Henry Aaron Loop

- Turning movements were counted during peak periods

- Average Daily Traffic Counts were also used
Average Daily Traffic (ADT)

- ADT is the total two-way traffic on a roadway over the course of one day.
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
Canal St – 5,000 cars per day
Broad, Beauregard, and Canal are all currently seven-lane roadways with three travel lanes in each direction with a center turn lane or median.

Based on traffic volumes, these streets should be able to operate with only three lanes.
LOS is a measurement used to describe the amount a delay a vehicle may typically experience at an intersection. It is considered acceptable for a signalized intersection to operated at LOS D or E during peak periods.
## Intersection Level of Service

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Operations with very low control delay occurring with favorable progression and/or short cycle lengths.</td>
</tr>
<tr>
<td>B</td>
<td>Operations with low control delay occurring with good progression and/or short cycle lengths.</td>
</tr>
<tr>
<td>C</td>
<td>Operations with average control delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.</td>
</tr>
<tr>
<td>D</td>
<td>Operations with longer control delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.</td>
</tr>
<tr>
<td>E</td>
<td>Operations with high control delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.</td>
</tr>
<tr>
<td>F</td>
<td>Operation with control delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Control Delay per Vehicle (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 10.0</td>
</tr>
<tr>
<td>&gt; 10.0 and ≤ 20.0</td>
</tr>
<tr>
<td>&gt; 20.0 and ≤ 35.0</td>
</tr>
<tr>
<td>&gt; 35.0 and ≤ 55.0</td>
</tr>
<tr>
<td>&gt; 55.0 and ≤ 80.0</td>
</tr>
<tr>
<td>&gt; 80.0</td>
</tr>
</tbody>
</table>

Source: 2010 Highway Capacity Manual
Highway Capacity Manual methodology was used to analyze the capacity of ten intersections under consideration.

In addition to existing conditions, two future scenarios were evaluated:

- 2035 conditions based on existing intersection configurations
- 2035 conditions based on proposed changes that I will discuss later.
## Intersection Level of Service

<table>
<thead>
<tr>
<th>Intersection</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>2035 Build</td>
</tr>
<tr>
<td>Beauregard/Lawrence</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Beauregard/Martin Luther King</td>
<td>C</td>
<td>C</td>
</tr>
<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>
<td>B</td>
</tr>
<tr>
<td>Washington/Government</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Washington/Canal</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>
Traffic Analysis

- The Broad Street corridor has two complex intersections:
  - Broad St. and St. Francis
  - Broad St. at Springhill, St. Louis, & St. Anthony
- At both locations, complex signal timings and intersection operations create unnecessary delay.

- The other intersections maintain their level of service with proposed changes, with the exception of Broad Streets intersections with Government and Canal.
- The analysis shows an acceptable decrease in LOS with a significant increase in safety and accessibility.
Signal Warrant Analysis

- Signal warrant analyses were conducted for seven minor intersections in the interior of the Henry Aaron Loop.
- The purpose was to determine if these intersections actually require signalization.

- Five of these are currently signalized, two are not.
- The two that are not signalized were deemed not to need signalization.
- Four of the five that are signalized were found not to need to be.
## Signal Warrants

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

- Great Street Approach
- Employs both Complete Streets and Context Sensitive Solutions
- Deliver a balanced quality of service for all modes of transportation
- Develop a transportation facility that fits in with its physical setting
- People as priority
  - People who drive cars, walk, bike, ride transit, and live and work along/near the street

Make the trip as enjoyable as the destination
Street Network

- Downtown Mobile would appear to have a strong grid street network, however, there are a large number of one-way, automobile oriented streets that do not allow bicycle connectivity or inviting walking conditions.

- Changes call for a two-way street conversion plan to make every one-way street in the downtown area two-way.
Road diet, separated bike lanes

Shared street

2-way, bike facilities, parking

2-way, simple streets

2-way, bike lanes

Proposed Network
Henry Aaron Loop Rightsizing

- Broad St. and Beauregard St function as a single street comprising the northern and western portions of the Henry Aaron Loop.
- A cross section of the street consists of:
  - three 10-foot wide travel lanes in each direction
  - 14-foot center turn lane/median
  - curb and gutter
  - a 5-foot grass lawn
  - 5-foot sidewalk on each side of street

- Short term: Outside travel lanes converted into separated bike lanes with painted buffers and flexible bollards

- Long term: full reconstruction
  - two lanes in each direction
  - center turn lane/median
  - raised separated bike lanes
  - landscaped buffers
  - wider sidewalks
Short term - Separated Bike Lanes
- Canal Street is overbuilt for current and future traffic volumes
- A cross section of the street consists of
  - three 12-foot wide travel lanes in each direction
  - 22-foot center turn lane/median
  - curb and gutter
  - a 5-foot grass lawn
  - 5-foot sidewalk on each side of street
- Only a three-lane cross section needed to handle current and future traffic
- The southern half of Canal can be converted into a linear park with a share used path for bikes and pedestrians.
Canal Street Proposed
Canal Street

Downtown Mobile Non-Motorized Mobility Study
Intersection Improvements

- In conjunction with corridor improvements, long term improvements were proposed for key intersections along the loop
  - Broad and Spring Hill
  - Broad and Dauphin
  - Broad and Canal
  - Spring Hill at St. Francis
Broad and Spring Hill Improvements

- Intersection currently has five legs with two signals
- Recommended that the intersection be replaced with a roundabout with St. Anthony between Broad and Spring Hill closed off.
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
Another complex intersection with two signals

Recommended that the intersection be replaced with a roundabout with St. Francis Street redirected into the roundabout
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
Broad and Canal Improvements

- Intersection currently has high traffic speeds with right-turn slip lanes and channelized left-turn acceleration lanes
- Recommended that the intersection be redesigned to bring all traffic to the stop bars of the intersection with no free flow movements
- This would improve safety for all modes and result in insignificant decrease in LOS
Broad/Canal Intersection
Broad/Canal Intersection

1. Broad St | Road Diet with Protected Bike Facilities
2. Broad St at Canal St | Protected Intersection for bike facilities
3. Canal St | Road Diet
4. Canal St | Linear Park and Shared Use Path
Spring Hill and St. Francis Improvements

- Currently extremely wide with five lanes and four intersection is quick succession
- Recommended that it be narrowed to two lanes and converted in to a “shared street.”
1. 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
Program/Policy Recommendations

- Implement a Pedestrian and Bicycle Count Program
- Develop Public Realm Design Guidelines
- Establish Bicycle Parking Guidelines
- Determine Bike Share Feasibility
Downtown Mobile Non-Motorized Mobility Study

Tom Piper
South Alabama Regional Planning Commission

Telephone: 251-433-6541, ext. 422

Email: tpiper@sarpc.org

Websites: www.mobileempo.org www.sarpc.org