Cushman and Barnette Two-Way Traffic Study

FMATS Technical Committee
May 12, 2010

Purpose of the Study

- Provide a second opinion/confirm the traffic findings from the Vision Fairbanks Downtown Plan (VFDP) and recent study by Kinney Engineering of Alternative 3.
- Compare the traffic growth assumptions with the most recent modeling for the LRTP.
- Help the City and FMATS answer the following key questions:
  - *Are there any fatal flaws or significant constraints that result from the one-way bridge configuration combined with the two-way street conversions?*
  - *Will the "target" average daily traffic (ADT) for Cushman Street southbound, still be achieved, as proposed in VFDP?*
  - *Will Barnette Street function as a "Mobility Street", as proposed in the VFDP, if northbound traffic is forced to travel onto 1st Avenue then turn left (north) onto the Cushman Street Bridge?*
  - *What are the impacts of this proposed street configuration on the east-west streets planned for two-way conversion, specifically on 1st Avenue?*

Study Alternatives

- Alternative 1: Two-Way Cushman & Barnette
  - *Based on the Vision Fairbanks Downtown Plan (VFDP)*
  - *Cushman: Single lane in each direction with on-street parking*
  - *Barnette: Single lane in each direction with center turn lane*
  - *Roundabout at the Illinois Street intersection*
- Alternative 2: One-Way Cushman & Barnette
  - *Based on the Illinois Street Reconstruction Project with street amenities similar to Alternative 1.*
  - *Cushman: Two lanes northbound with on-street parking*
  - *Barnette: Two-four lanes southbound*
  - *Signalized intersection at Illinois Street/Terminal Street*
- Alternative 3: Two-Way Cushman and Barnette with One-Way Bridges
  - *South of 1st Avenue, Cushman and Barnette are the same as Alternative 1*
  - *North of 1st Avenue, Cushman and Barnette at the same as Alternative 2*

Evaluation Criteria

- Traffic Operations: LOS and Queuing/Congestion
- Target ADT Traffic Level for a “Signature Street”
  - *Approximately 10,000 ADT is recommended*
- Pedestrian Environment
  - *Cross-sectional elements were held constant across the alternatives*
  - *Auto-pedestrian conflict potential was reviewed*
- Storefront Exposure
  - *Balanced exposure for businesses in varying locations*
- Access to Businesses
  - *Travel distance and ease of circulation pattern*

General Review Observations

- The 2025 Traffic Forecasts in the VFDP are similar in magnitude to the level of growth being projected for the 2035 LRTP update.
- Cushman Street has a greater percentage of “through” traffic than Barnette Street during the p.m. peak hour.
- The east-west streets have relatively low volumes under all the alternatives.
- Gaffney Road is a significant cut-through route traffic from Airport Way that heads northbound to avoid the Cushman Street/Airport Way intersection.

Study Findings: Alternative 1 (Two-Way)

- Benefits:
  - *Greatest flexibility for traffic to distribute between Cushman Street and Barnette Street*
  - *Best traffic pattern for business exposure and accessibility*

- Potential Issues
  - *Requires an additional lane on the Barnette Bridge (4 lanes of width) to operate acceptably*
  - *Cushman Street still requires two northbound lanes between Airport Way and 10th Avenue*
  - *The Terminal Street right-in, right-out is too close to the proposed roundabout. Terminal Street will need to come into the roundabout or further north on Illinois Street.*
  - *A traffic signal instead of a roundabout could be designed to operate acceptably*

Study Findings: Alternative 2 (One-Way)

- Benefits:
  - *Greatest overall capacity*
  - *Fewest conflicts between autos and pedestrians*
- Potential Issues
  - *Not as good for business exposure*
  - *Lower level of accessibility for businesses*
  - *May require more effort to manage travel speeds during off-peak times*
  - *Greatest impact on the Cushman Street/Airport Way intersection if Gaffney Road is closed between Cushman Street and Barnette Street*

Study Findings: Alternative 3 (Two-Way/One-Way Bridges)

- Benefits:
  - *Can maintain the design of the signalized intersection at Illinois Street/Terminal Street as proposed in the Illinois Street Reconstruction Project*
- Potential Issues
  - *Does not meet the goals of the VFPD:*
    - Not as good for business accessibility
    - Difficult to understand and navigate for visitors
    - Not as good for pedestrians in the vicinity of 1st Avenue and 2nd Avenue
  - *Significantly reduces corridor mobility*
    - The "zig-zag" increases delay in the area around 1st and 2nd Avenue.
    - Creates a worse situation than the current Cushman-Barnette traffic pattern at 1st Avenue
  - *Creates significant congestion at the 1st Avenue/Barnette intersection*
    - Possible Mitigation: Extend the one-way section of Barnette Street southbound to 2nd Avenue and force northbound Barnette Street traffic onto 2nd Avenue

Summary of Key Findings: General

- Alternative 1 provides the simplest street network for downtown and will have little or no influence on business location decisions.
- Alternative 2 provides the best vehicular mobility but has the potential to influence business location decisions.
- Alternative 3 creates the highest levels of congestion, a more confusing street network for motorists to navigate, and will influence business location decisions to a greater extent than Alternative 1.
- All the east-west streets will operate acceptably as two-way and should be converted where it makes sense from a right-of-way and cost perspective.
- A traffic signal at the Illinois Street intersection could operate acceptably with Alternative 1 but would require a redesign and possibly more right-of-way than the signal anticipated in Alternatives 2 and 3.