

# Implementation Task Force Meeting

Thursday, May 24, 2007



# Agenda

- Evaluation criteria
- Operating plans, costs
- Ridership forecast refinements
- Cost effectiveness

# Evaluation Criteria

Criteria	Alternatives					
	1 - BRT	2a - LPA*	2b - LPA/ Isthmus	3 - LPA/Airport	4 - Street Running	5 - LPA/Whit./Min. Pt.
Capital costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operation and Maintenance Costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social, Economic, Environmental Impacts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transit Integration Potential	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial Feasibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ridership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Economic Development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regional Land Use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* LPA is the Locally Preferred Alternative selected in the first phase of Transport 2020. The Locally Preferred Alternative must be carried forward into detailed analysis.

Alternative 1 Bus Rapid Transit

Alternative 2a Railroad right-of-way from Greenway Center to East Towne (Original LPA)

Alternative 2b Alternative 2a plus street running through the Isthmus

Alternative 3 Railroad right-of-way from Greenway Center to Dane County Airport

Alternative 4 Street running from Prairie Town Center on Whitney Way and Mineral Point, railroad right-of-way from Whitney Way to Kohl Center, street running from Kohl Center to East Towne

Alternative 5 Alternative 2b plus Whitney Way/Mineral Point street running; minus rail segment between Whitney Way and Greenway Center



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# Operating Plans

	<b>Alternative 2a</b>		<b>Alternative 3</b>	
<b>Headways</b>	15 minutes	20 minutes (10/10)	15 minutes	20 minutes (10/10)
<b>Capital Costs</b>	\$204 – 245 M	\$246 - 297 M	\$174 – 204 M	\$210 – 246 M
<b>Ridership</b>	10,000	12,000	10,000	9,000

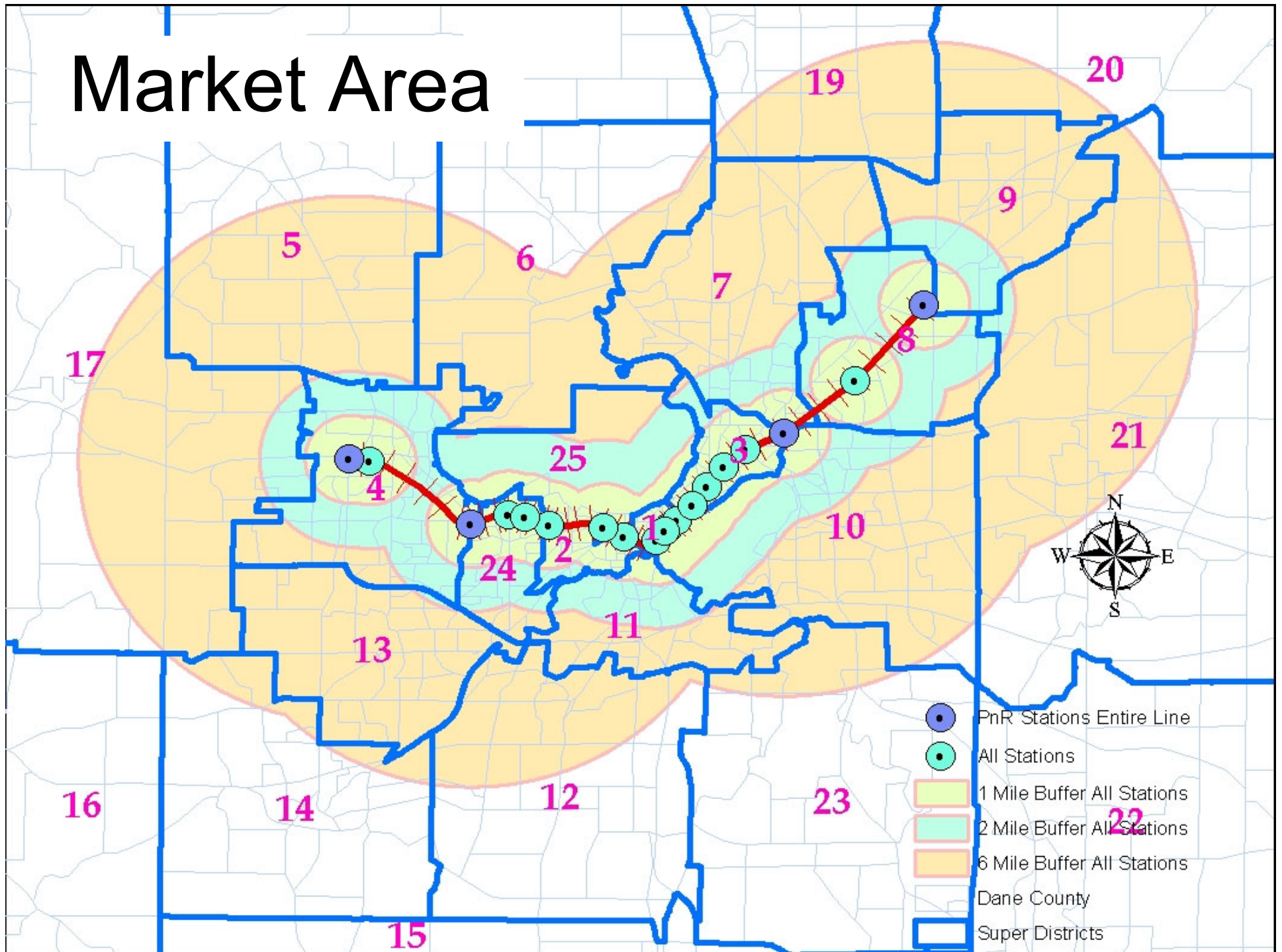
# Ridership Forecasts

# Overview

- FTA's sketch planning tool
- Madison model application
- Comparison of rail ridership
  - “2A”: Middleton 12/14 to Reiner Road
  - “3”: Middleton 12/14 to Airport
- Impact of rail “attractiveness” constants
- Preliminary system user benefits
- Upcoming meeting with the FTA



# Market Area



# FTA Sketch Tool vs. Model

- FTA sketch tool (“ARRF”)
  - Additional “data points”
  - Range of ridership estimates
  - “Commuter rail” estimate: 4,250 – 8,500 riders
  - “Light rail” estimate: Up to 20,000 daily riders
- Madison model estimates
  - Within the FTA range
  - Alternative 2A: 10,690 daily riders
  - Alternative 3: 8,350 daily riders

# Attractiveness of Rail

- Models account for transit quality of service
- Perceived rail advantages not traditionally accounted
- FTA's recent guidance on:
  - **Rail travel time**
  - **Rail headway**
  - **Attractiveness of rail**
    - Guideway characteristics
    - Span of good service
    - Passenger amenities
- Quantifying the impact of rail advantages

# Travel Time Impacts

- Comfort and seat availability make ride less onerous
- 80% discount for rail travel time
  - Guaranteed-seat
  - Comfortable ride
- A 10 minute travel time translates as:
  - 10 minutes for highway
  - 10 minutes for bus
  - 8 minutes for rail

# Headway Impacts

- Traditionally, random arrivals assumed
  - Wait time = headway / 2
- FTA guidance
  - Same convention for headways less than 15 min.
  - Discounted impact of headways 15+ min.
    - Small impact on headways of 20 minutes
    - Measurable impact for 30 or 40 min. headways
      - 30 min. rail headway: 11 min. vs. 15 min. wait time
      - 40 min. rail headway: 14 min. vs. 20 min. wait time

# Rail Attractiveness

- Guideway characteristics
  - Operating reliability up to 4 points
  - Visibility and branding up to 2 points
  - Schedule-free service up to 2 points
- Span of good service up to 3 points
- Passenger amenities
  - Stations/stops up to 3 points
  - Dynamic schedule information up to 1 point

# Impact on Ridership

- Ridership higher with “rail attractiveness” attributes

	<b>Alt. 2A to Reiner Rd</b>	<b>Alt. 3 to Airport</b>
In-vehicle travel time discount	10,690	8,350
Headway discount	10,920	8,840
Rail Attractiveness	12,430	9,910



# Comparison: 2A versus 3

- Differences in headway
  - 20 min. peak / 40 min. off-peak for Alternative 2A
  - 15 min. peak / 30 min. off-peak for Alternative 3
- Use of consistent frequencies for both alternatives

	<b>Alt. 2A to Reiner Rd</b>	<b>Alt. 3 to Airport</b>
Peak Headway: 15 min. Off-peak Headway: 30 min.	11,950	9,910



# Cost Effectiveness (CEI)

$$\text{CEI} = \frac{\text{Annualized Costs: Rail – Baseline}}{\text{Benefits: Rail – Baseline}}$$

















- Benefits to current and new transit riders
  - Speed of service
  - Accessibility
  - Fares
  - Frequency of service
  - Other attributes of rail attractiveness

# Transportation System User Benefits

Alternative 2a = \$31

Alternative 3 = \$38

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