Kane County
Randall/Orchard Corridor BRT Feasibility Study

October 26, 2011
Funded through the Energy Efficiency and Conservation Block Grant (EECBG) Program of the American Recovery and Reinvestment Act (ARRA)
STUDY OVERVIEW
Purpose of Study

- Identify conditions required for successful BRT operation in 2040
- Evaluate potential benefits from BRT service in Randall/Orchard Road corridor
Elements of Rapid Transit

- Unique branding
- Widely-spaced “station stops” with superior amenities
- Speed and reliability improvements
- Quality access – all modes
- Frequent service – no schedule needed
- Low-floor vehicles, multi-door boarding
- Dedicated lanes
Why Bus Rapid Transit?

- Incremental implementation
- Improve quality of transit service
- Improve customer experience
- Shorten trip lengths
- Shift trips to transit
- Create vibrant, livable communities
- Foster economic development
Conditions for Successful BRT Projects

- Transit travel time competitive with automobile
- Unique branding to differentiate service
- Transit supportive land uses
  - Mixed use
  - Multistory development
  - Multimodal connectivity
    - Transit, pedestrian and bicycle access
- Major attractors in the corridor
  - Medical centers, employment centers, public institutions ...
Project Timeline

Visioning Workshop

Identify potential BRT alignment

Conduct Quality of Kane Outreach

Establish conceptual future conditions

Model traffic conditions

Identify benefits and costs

Conduct Quality of Kane Outreach
DEVELOPMENT CONDITIONS
Visioning Workshop Results

- Identified 28 potential station locations
  - Preference for medium level densities
  - Preference for mixed-use retail with some mixed-use commercial/employment
  - Connections to both nearby activity centers and to other key destinations in the region
Conceptual Station Areas

- **Minimum Operable Segment**
  - Randall north of I-90 to Orchard & Sullivan

- **13 Station Areas**

- **Accommodate 40% of Sustainable Urban Area growth**
<table>
<thead>
<tr>
<th>Ref</th>
<th>Location</th>
<th>Net Buildable Area (Acres)</th>
<th>Station Development Typology</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>IL 72 to I-90 west of Randall</td>
<td>375</td>
<td>Mixed Use Employment (Office/Industrial)</td>
</tr>
<tr>
<td>B</td>
<td>Randall at Big Timber Road</td>
<td>113</td>
<td>Mixed Use Employment (Office/Medical)</td>
</tr>
<tr>
<td>C</td>
<td>Randall south of U.S. 20</td>
<td>113</td>
<td>Mixed Use Residential</td>
</tr>
<tr>
<td>D</td>
<td>Randall at Bowes Road</td>
<td>83</td>
<td>Mixed Use Retail</td>
</tr>
<tr>
<td>E</td>
<td>Randall north of McDonald Road</td>
<td>150</td>
<td>Mixed Use Employment (Office / Retail)</td>
</tr>
<tr>
<td>F</td>
<td>Randall at IL 64</td>
<td>105</td>
<td>Mixed Use Employment (Office / Retail)</td>
</tr>
<tr>
<td>G</td>
<td>Randall at IL 38</td>
<td>225</td>
<td>Mixed Use Retail</td>
</tr>
<tr>
<td>H</td>
<td>Randall at Keslinger Road</td>
<td>101</td>
<td>Mixed Use Employment (Institutional / Retail) (Destination)</td>
</tr>
<tr>
<td>I</td>
<td>Randall at Fabyan Parkway</td>
<td>135</td>
<td>Mixed Use Retail</td>
</tr>
<tr>
<td>J</td>
<td>Randall at Main Street (Batavia)</td>
<td>135</td>
<td>Destination (Entertainment/Hospitality)</td>
</tr>
<tr>
<td>K</td>
<td>Orchard/Randall at Mooseheart Road</td>
<td>165</td>
<td>Mixed Use Employment / Destination (Entertainment/Hospitality)</td>
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<tr>
<td>L</td>
<td>Orchard at I-88 (North) / Orchard Gateway Blvd.</td>
<td>353</td>
<td>Mixed Use Employment (Office / Retail)</td>
</tr>
<tr>
<td>M</td>
<td>Orchard at I-88 (South) / Sullivan Road</td>
<td>131</td>
<td>Mixed Use Employment (Office / Retail)</td>
</tr>
<tr>
<td>Intensity of Development</td>
<td>Dwelling Units per Acre</td>
<td>Out-of-County Examples</td>
<td>Kane County Examples</td>
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<tr>
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<td>Birds Eye View</td>
<td>Zoomed In View</td>
</tr>
<tr>
<td>Medium-Low</td>
<td>6-10</td>
<td>Longmont, CO. 8.8 DU/Acre</td>
<td>South Elgin, 8 DU / Acre</td>
</tr>
<tr>
<td>Medium-High</td>
<td>12-16</td>
<td>Shaker Heights, OH. 15.2 DU/Acre (219 units, 14.4 acres)</td>
<td>Batavia, 14 DU / Acre</td>
</tr>
<tr>
<td>High</td>
<td>18-22</td>
<td>San Jose, CA. 21.0 DU/Acre (98 Units, 4.6 acres)</td>
<td>Elgin, 19 DU / Acre</td>
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</tbody>
</table>

Conceptual BRT Station Area Development

Corridor demographic allocations

- **Medium Density Scenario**
  - Population - ↑ of 51,266 above 2040 allocations
  - Household - ↑ of 17,515 above 2040 allocations
  - Total jobs in station areas – 41,220

- **High Density Scenario**
  - 50% ↑ from Medium Density Scenario
Transit Use Modeling Assumptions

Transit Mode Share Assumptions

- **Current Assumption**
  - less than 1% transit mode share

- **What if - BRT Scenario Assumptions**
  - 4% County-wide (based on CMAP)
  - 14% Station to Station (based on MPC BRT study)
Model Results - Development Induced Trips

County-Wide Vehicle Trips

- No increase in transit (transit share <1%)
  - Medium density scenario - 4% ↑ in trips
  - High density scenario - 7% ↑ in trips

- With 4% overall transit share +14% transit use BRT station to station
  - Medium density scenario - 0.5% ↓ in trips
  - High density scenario - 2% ↑ in trips
Model Results – What if Scenario

- **Corridor increase in trips**
  - Medium density $\uparrow$ 130%
  - High density $\uparrow$ 270%

- **Majority of trips in Randall/Orchard corridor are station to station**
  - Medium density scenario $> 65$
  - High density scenario $> 70$

Significance of Model Results

- Concentration of trips in corridor is station to station
- More travel options
- ↓ Per capita VMT
  - 15% to 35% decreases in corridor relative to 2040 Plan
- Further results will indicate (TBD)
  - Energy savings
  - Air quality benefits
  - Travel time savings
Daily Person Trips in the Randall/Orchard Corridor
(North of I 90 to South of I 88)
Internal Trips Only (does not include through trips)

Land Use Scenario

<table>
<thead>
<tr>
<th></th>
<th>Current (&lt;1% Transit)</th>
<th>2040 (~3.8% Transit)</th>
<th>2040 w/ BRT Stations (~3.8% Transit)</th>
<th>2040 W/ BRT Stations and BRT Service</th>
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</thead>
<tbody>
<tr>
<td>Person Trips</td>
<td>187</td>
<td>1,608</td>
<td>2,725</td>
<td>8,401</td>
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<tr>
<td>Transit</td>
<td></td>
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<tr>
<td>Auto</td>
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</tbody>
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BRT Improvements

- Location of Queue Jumps/TSP
- Length of Queue Jumps
- Travel Time improvements
Next Steps

- **Refinement of benefits analysis**
  - Travel times
  - Air quality
  - Energy Savings

- **Corridor infrastructure improvements**
  - Queue jump lanes
  - Signal priority

- **Public Outreach**
  - Quality of Kane
  - Stakeholders

- **Delivery to County Board**