Transport Chicago
Friday, June 6, 2014
Union Station History

• The last of Chicago’s historic stations; now owned by Amtrak
• Designed primarily to serve long distance trains, including large amounts of mail and express traffic
• Trains approach from north and south but do not pass through

Original Concourse Building, demolished 1968
Chuckman Collection

The original concourse interior featured open space
Univ. of AZ Library/Fred Harvey Collection

The original station handled voluminous mail and express packages

During World War II 100,000 passengers per day passed through Chicago's Union Station
Street Access issues

- Conflicts between:
  - Taxis
  - Buses
  - Automobiles
  - Shuttles
  - Pedestrians
  - Bicycles

Union Station Passenger Access Modes:

<table>
<thead>
<tr>
<th>Passengers</th>
<th>Amtrak</th>
<th>Metra</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday</td>
<td>9,000</td>
<td>109,000</td>
</tr>
<tr>
<td>Saturday</td>
<td>9,000</td>
<td>10,500</td>
</tr>
<tr>
<td>Sunday</td>
<td>9,000</td>
<td>7,000</td>
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</tbody>
</table>
Station Congestion Issues

Concourse

Mezzanine
Track/Platform Issues

• Existing track layout limits both train and passenger capacity
  – Limited number of platforms
  – Narrow, obstructed platforms cause overcrowding
  – Single point of access to south platforms
  – Limited ability to operate trains through the station
Midwest Regional Rail Initiative

- A 3,000 mile network of fast, frequent intercity trains
- Corridors with improvements currently funded include:
  - Chicago-Bloomington/Normal-Springfield-St Louis
  - Chicago-Kalamazoo-Battle Creek-Ann Arbor-Detroit
  - Chicago-Milwaukee
  - Chicago-Rockford-Dubuque
  - Chicago-Quad Cities
Many Prior Ideas

Most With Limited Analysis

Original Daniel Burnham proposal for Union Station with office tower (c. 1914)

Winner of Chicago’s Union Station 2020 Design Competition (2009)

West Loop Transportation Center proposal (2002)

Solomon Cordwell Buenz proposal (2011)
Goals of this Master Plan Study

1. Provide sufficient capacity for significant increases in Metra and intercity ridership
   - estimated 40% increase in trains by 2040
   - possible significant further increases
2. Make the terminal more inviting for passengers
3. Provide more direct and convenient transfers to buses, CTA trains, taxis, shuttles, pick-up/drop-off
4. Create a terminal that is vibrant, a civic asset, and a catalyst for growth in the West Loop and region
Short Term Ideas

• Two upcoming CDOT projects can improve local street traffic flow and curb access:
  – Central Area East-West Bus Rapid Transit project (improved bus lanes)
  – Union Station Transportation Center (off-street bus terminal)
Medium Term Ideas

• Enhance existing station facilities
  – Improved navigation and passenger flow
Medium Term Ideas

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  – Improved navigation and passenger flow
Medium Term Ideas

Reallocate space not currently available to passengers

• Repurpose some unused baggage platform space
  – Widen Metra platforms using this area
  – Add direct access to/from street level

Existing

Possible
Medium Term Ideas

Reallocate space not currently available to passengers

• Convert unused mail platform for higher speed intercity trains
  – Adds platform capacity
  – Creates new through tracks
Medium Term Ideas

• Canal Street Viaduct Reconstruction
  – Opportunity for improved access between street and track level
Long Term/Visionary Ideas

- Coordinate larger scale station expansion/enhancement with possible future land development
Long Term/Visionary Ideas

• Possible new station tracks and platforms in subway under Clinton or Canal St
Current Activities

- Complete use of 3 coordinated simulation models to evaluate technical alternatives for:
  - Train operations on network of approach tracks/platforms based on proposed track/platform improvements
  - Pedestrian movements in Station based on proposed configuration improvements
  - Street traffic/pedestrian operations based on proposed access improvements
Rail Operations Simulation

Used TranSystems own Transportation Modeling Studio which is specifically optimized for simulation of terminals.
Rail Operations Simulation

AM Rush (7:30 AM - 8:30 AM)

PM Rush (4:45 PM - 5:45 PM)
Platform Utilization

From To Color
- 0% 
0% 8% Green
8% 17% Yellow
17% 25% Red

Legend
- Validated with simulation of Existing Conditions and 7 steps of improvements/increases in train operations
Demonstrated Capability to Accommodate over 50% Increase in Train Operations
Pedestrian Behavior Model

Entry Points

Boltzmann

Frequency

Time

Metra Waiting Area

Amtrak Waiting Area

Union Station Master Plan
Pedestrian Behavior Model

Concourse
Pedestrian Behavior Model

Output

Space Utilization
Where people walked

Mean Density
How crowded was the space
Street Access Modelling

• Two Models Used
  – Synchro, of overall area, consisting of 41 intersections (by EJM Engineering)
  – VISSIM, of area immediately surrounding Union Station and Ogilvie Transportation Center (by DLZ)
Street Access Modelling

VISSIM Model Output

- Still shots

New Transit Center

Union Station, NB on Canal

Crosswalk
Street Access Modelling

VISSIM Model Output

• Video
Thank You

Please visit
www.UnionStationMP.org