Union Station Metrorail
Access and Capacity Improvements

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Office of Long Range Planning

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Presentation Outline

• Purpose
• Station and Area Growth
• Existing Conditions
• Access and Capacity Improvements
• Project Progress
Purpose

• Introduce Metro’s innovative approach of integrating station planning with area development
  • Understand development impacts and station growth
  • Identify potential improvements through engineering and architectural design
  • Apply dynamic pedestrian simulation and measures-of-effectiveness to assess benefits
Station and Area Growth

- Busiest Metrorail station and part of the Union Station intermodal center
  - 9 million Metro riders annually
  - Nearly 70% riders from Amtrak/commuter rail in AM peak period
  - 60% riders from Maryland and Virginia

- Planned large-scale development within walking distance to north mezzanine

- Expansion of local, regional and intercity transportation services
Station and Area Growth
Station and Area Growth

• Major area development will concentrate to the north, impacting Metrorail’s north mezzanine
• Pedestrian traffic at North Mezzanine will grow by 60% by 2030
• Development of station area and Union Station will stress an already crowded station, from platform, mezzanine to Amtrak concourse
Existing Conditions (N. Mezz)

- Mezzanine Level
- Amtrak Concourse
- Mezzanine Level
- Metrorail Platform
Existing Conditions (N. Mezz, PM Peak)
Focus on North Mezzanine
- Higher level of peak congestion than south mezzanine
- Planned development to the north side
- Structure and right-of-way constraints at south mezzanine

Apply a combination of techniques to identify station constraints, improvements and performance
- Engineering and structure feasibility assessment
- Architectural design
- Dynamic pedestrian simulation
- Measures of Effectiveness (MOE)
- Ridership projection for development plans

Involve stakeholders throughout the study
Access and Capacity Improvements
Study Approach

- Design Principles
  - Increase station capacity, improve passenger access, reduce travel time and enhance safety
  - Fit compatibly with existing building functions and historic qualities

- Formulate two improvement alternatives
  - Partial Build:
    Focuses on improvements at the mezzanine level
  - Full Build:
    Includes Partial Build and adds vertical connections to Metrorail platform and Amtrak concourse
Access and Capacity Improvements
Current Layout
Access and Capacity Improvements
Partial Build
Access and Capacity Improvements
Full Build
Access and Capacity Improvements
2030 Conditions

Mezzanine Ground Level

Partial Build

Full Build

Legend:
- LOS A = >35 sq.ft per pax
- LOS B = 25-35 sq.ft per pax
- LOS C = 15-25 sq.ft per pax
- LOS D = 10-15 sq.ft per pax
- LOS E = 5-10 sq.ft per pax
- LOS F = <5 sq.ft per pax
Access and Capacity Improvements
2030 Conditions

Amtrak Concourse

Partial Build

Full Build

LOS A = >35 sq.ft per pax
LOS B = 25-35 sq.ft per pax
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Access and Capacity Improvements
2030 Conditions

Metrorail Platform

Partial Build

Eastbound Platform

Westbound Platform

Full Build

Westbound Platform

Eastbound Platform
Access and Capacity Improvements
First St. Entrance
## Costs and Benefits

<table>
<thead>
<tr>
<th></th>
<th>Partial Build</th>
<th>Full Build</th>
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<tbody>
<tr>
<td><strong>Capital Costs</strong></td>
<td><strong>$28.5 million</strong></td>
<td><strong>$35.8 million</strong></td>
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<td>(FY10 Dollar)</td>
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<tr>
<td><strong>Benefits</strong></td>
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<tr>
<td>Capacity</td>
<td>Moderate capacity expansion on mezzanine level. No improvements on platform</td>
<td>Significant capacity expansion on all 3 levels of north mezzanine: mezzanine, platform and concourse</td>
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| Access               | • Direct link to new development, streetcar & intercity bus terminal | •Direct link to new development, streetcar & intercity bus terminal  
|                      |                                              | • Improved access to commuter rail, Amtrak and retail at Union Station     |
| Safety               | Modest safety enhancements on the mezzanine level resulted from reduced pedestrian conflicts | Significant safety improvements on all three levels, in particular Metrorail platform |
| Travel Time Savings  | • H St. passageway: annual savings of 99,500 person-hours | • H St. passageway: same as Partial Build  
| (Person-Hours)       |                                              | • North mezzanine: annual savings of 33,500 person-hours resulted from reduced congestion |
Project Progress

- Coordinate with DDOT, USRC (Union Station Redevelopment Corporation) and Amtrak
- Refine phasing strategy for advancing project
- Prepare for environmental clearance and PE
- Pursue potential funding sources for construction
- Apply study approach to other core station studies