



2011 Rail~Volution

Union Station Metrorail Access and Capacity Improvements

Wendy Jia

Washington Metropolitan Area Transit Authority
Office of Long Range Planning

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Presentation Outline

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

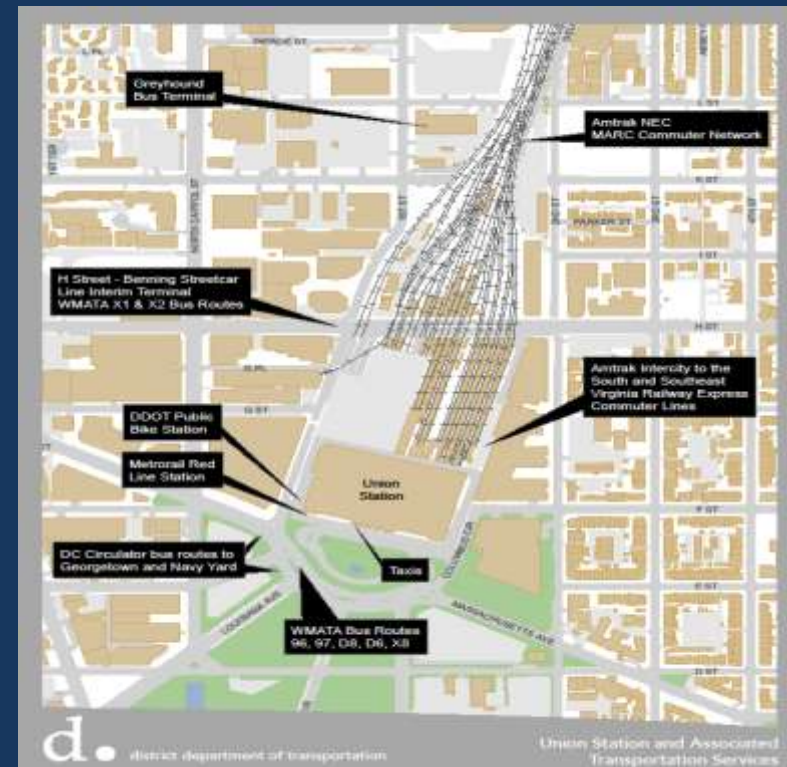
Purpose

- 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)



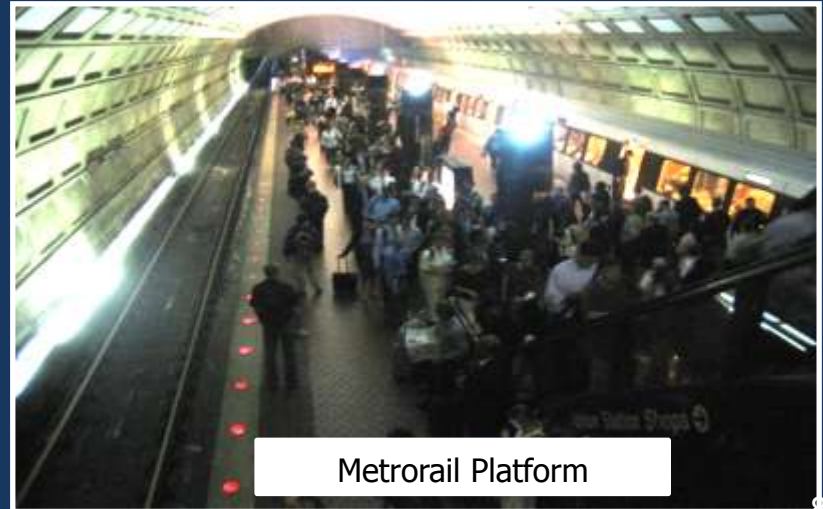
Mezzanine Level



Amtrak Concourse



Mezzanine Level



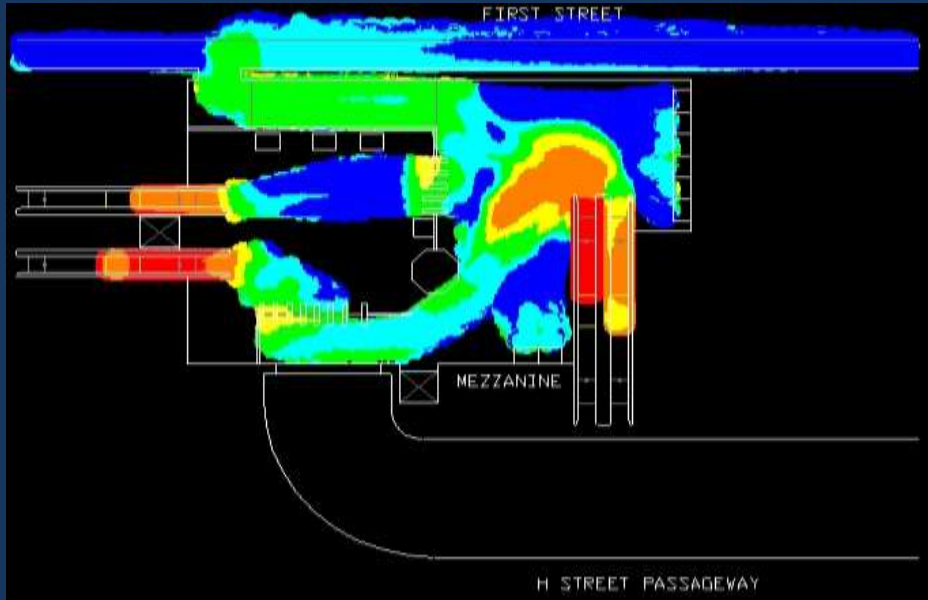
Metrorail Platform



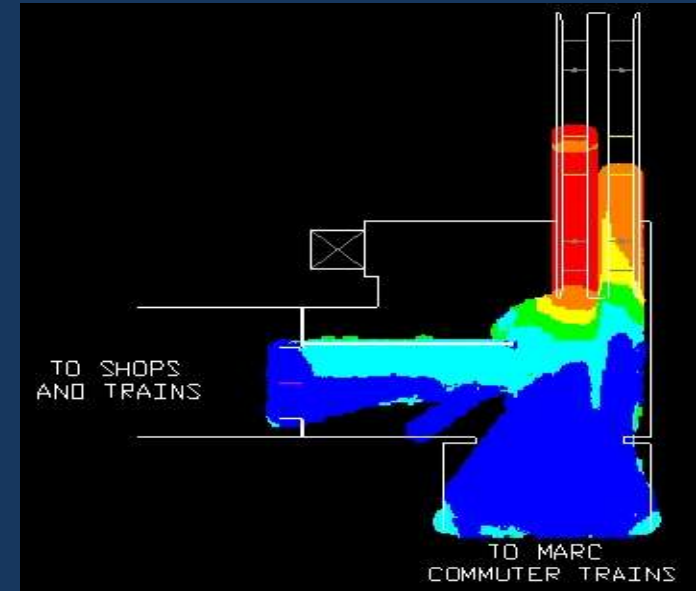
Existing Conditions (N. Mezz, PM Peak)

	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

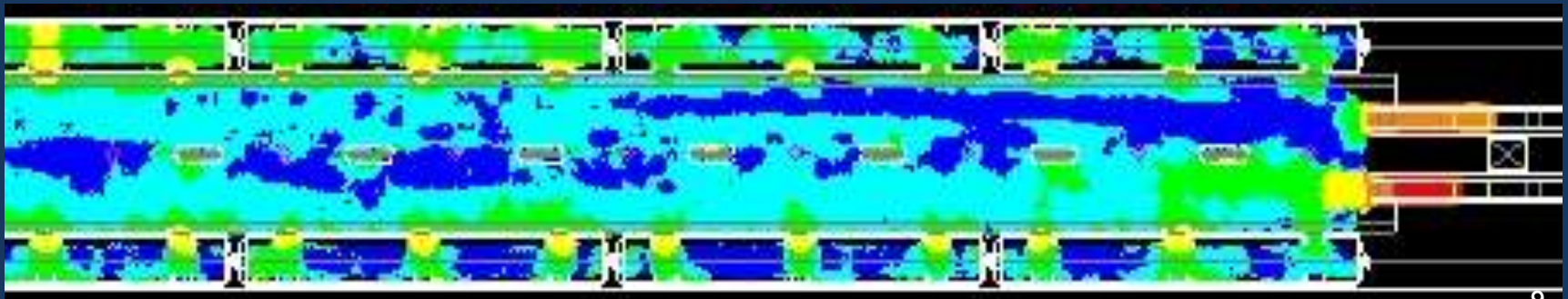
North Mezzanine



Amtrak Concourse



North End of Platform



Eastbound Platform



Access and Capacity Improvements Study Approach

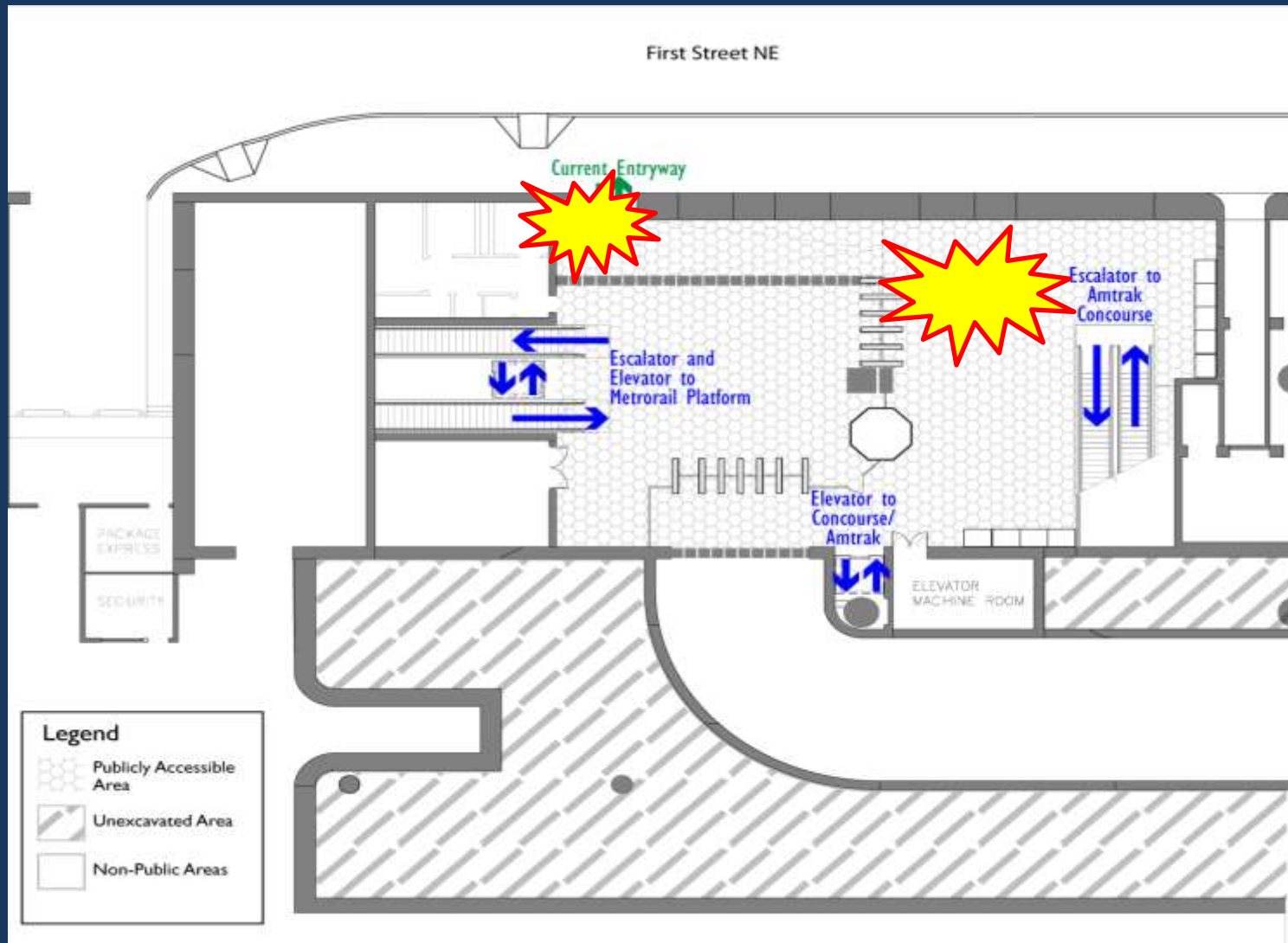
- Focus on North Mezzanine
 - Higher level of peak congestion than south mezzanine
 - Planned development to the north side
 - Structure and right-of-way constraints at south mezzanine
- Apply a combination of techniques to identify station constraints, improvements and performance
 - Engineering and structure feasibility assessment
 - Architectural design
 - Dynamic pedestrian simulation
 - Measures of Effectiveness (MOE)
 - Ridership projection for development plans
- Involve stakeholders throughout the study



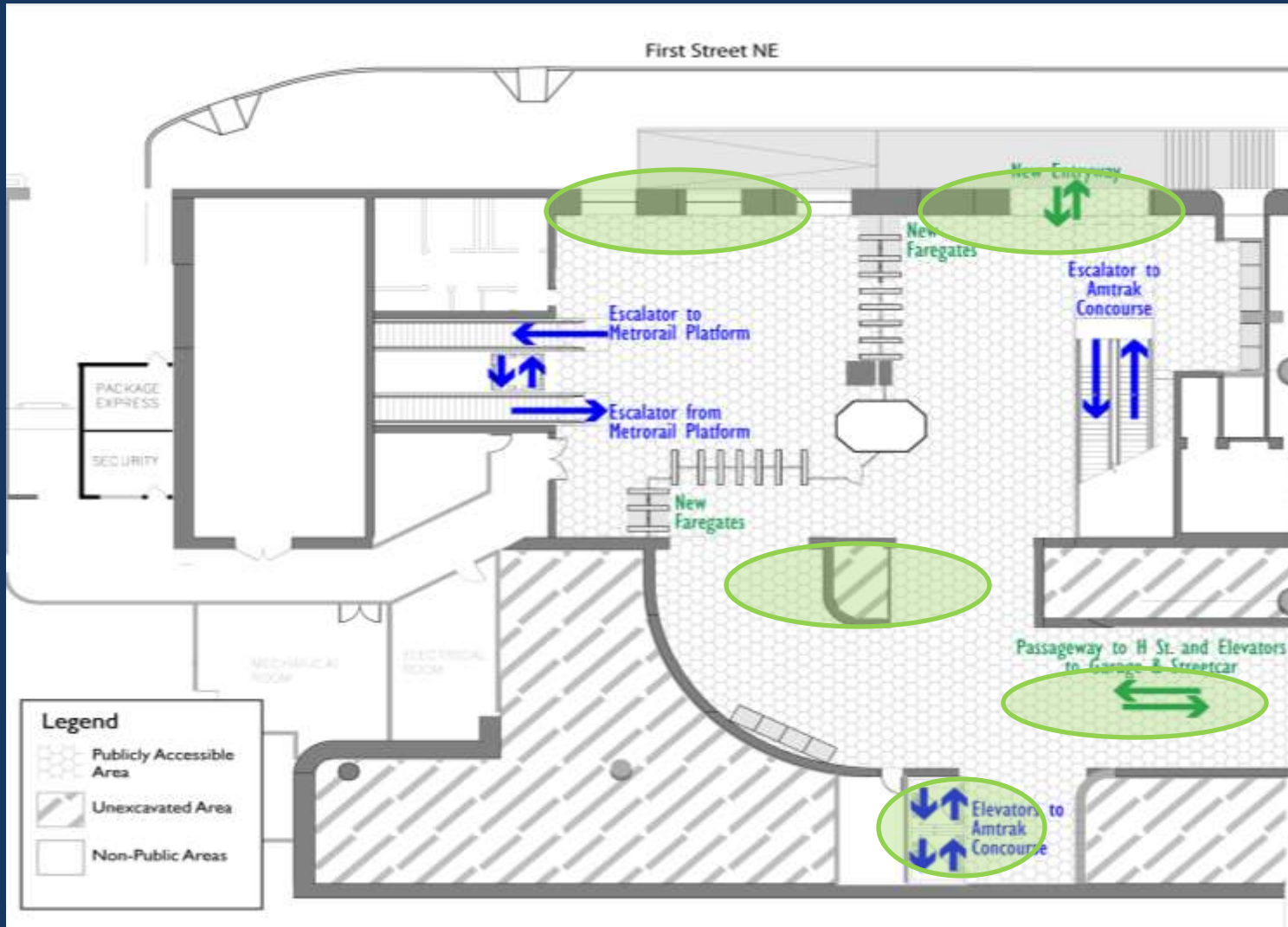
Access and Capacity Improvements Study Approach

- 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

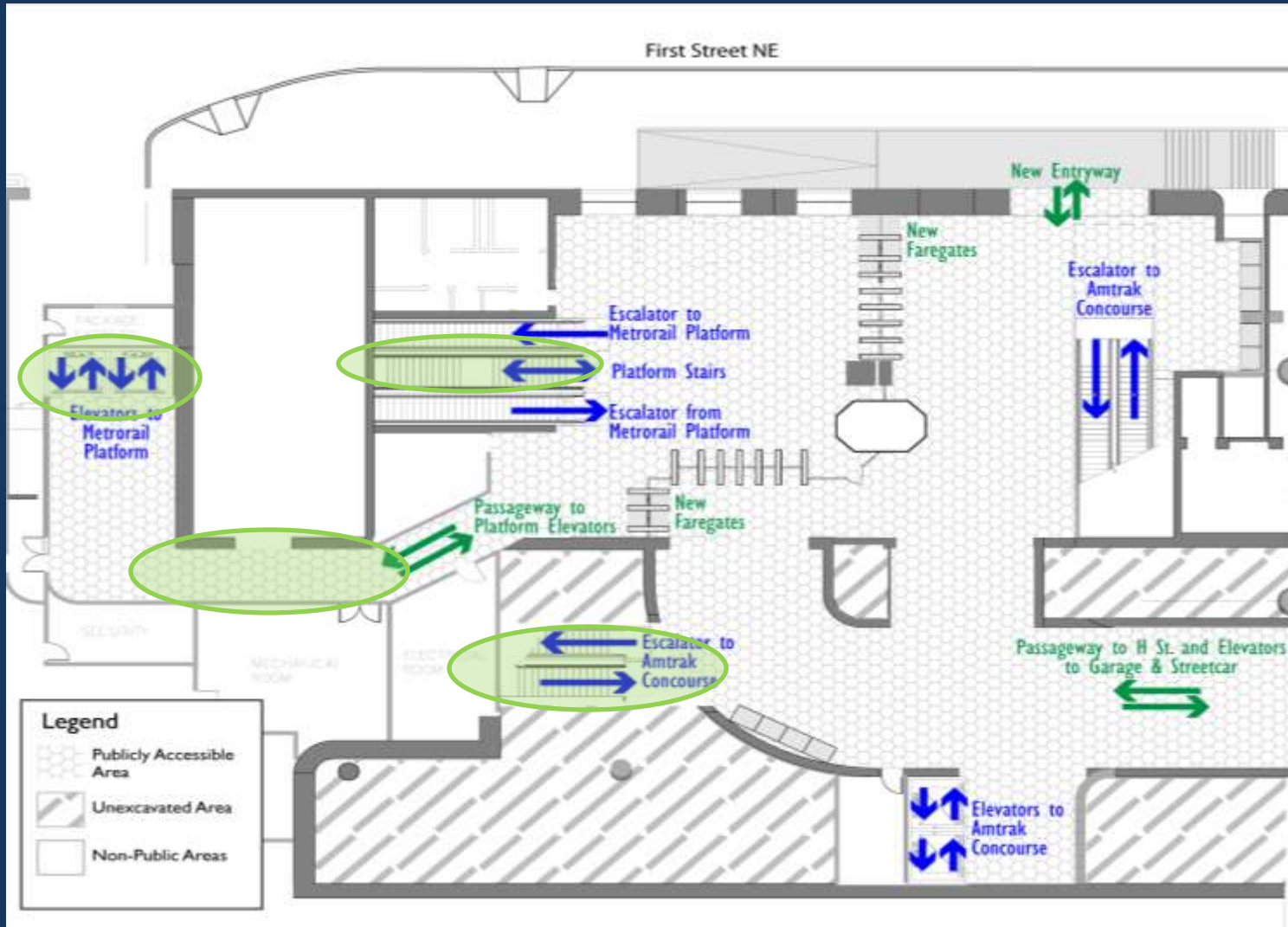
Access and Capacity Improvements Current Layout



Access and Capacity Improvements Partial Build



Access and Capacity Improvements Full Build

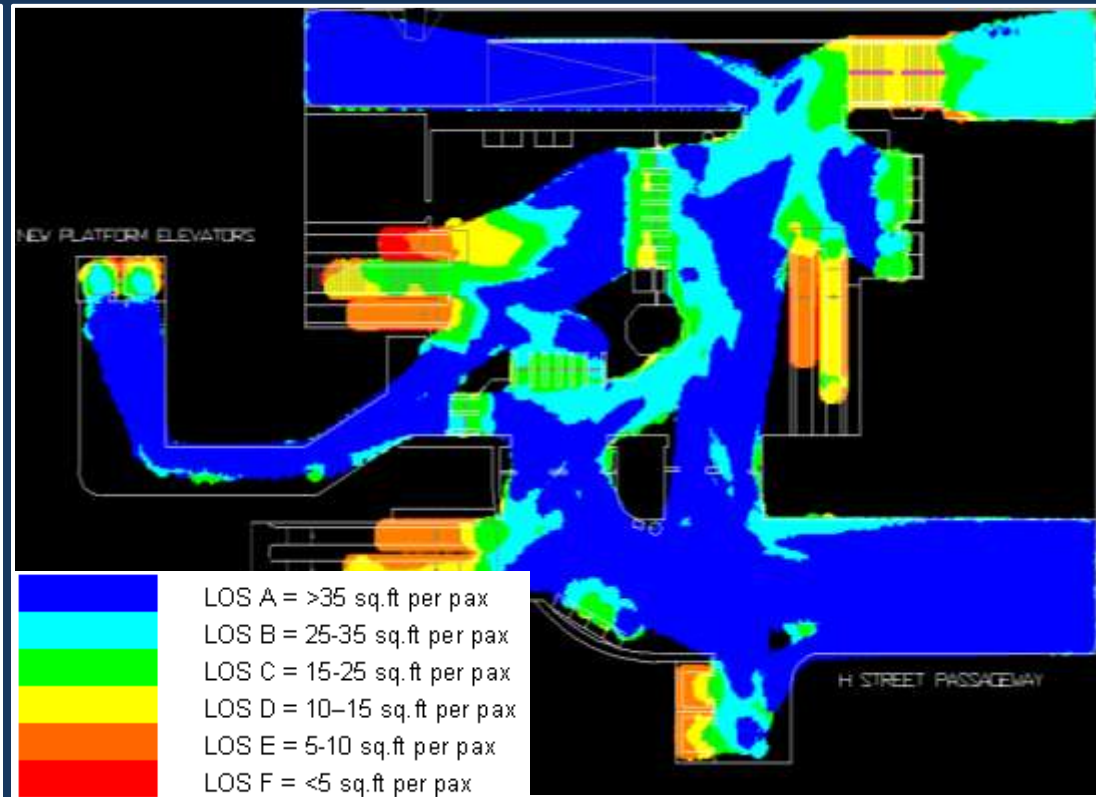


Access and Capacity Improvements 2030 Conditions

Mezzanine Ground Level

Partial Build

Full Build



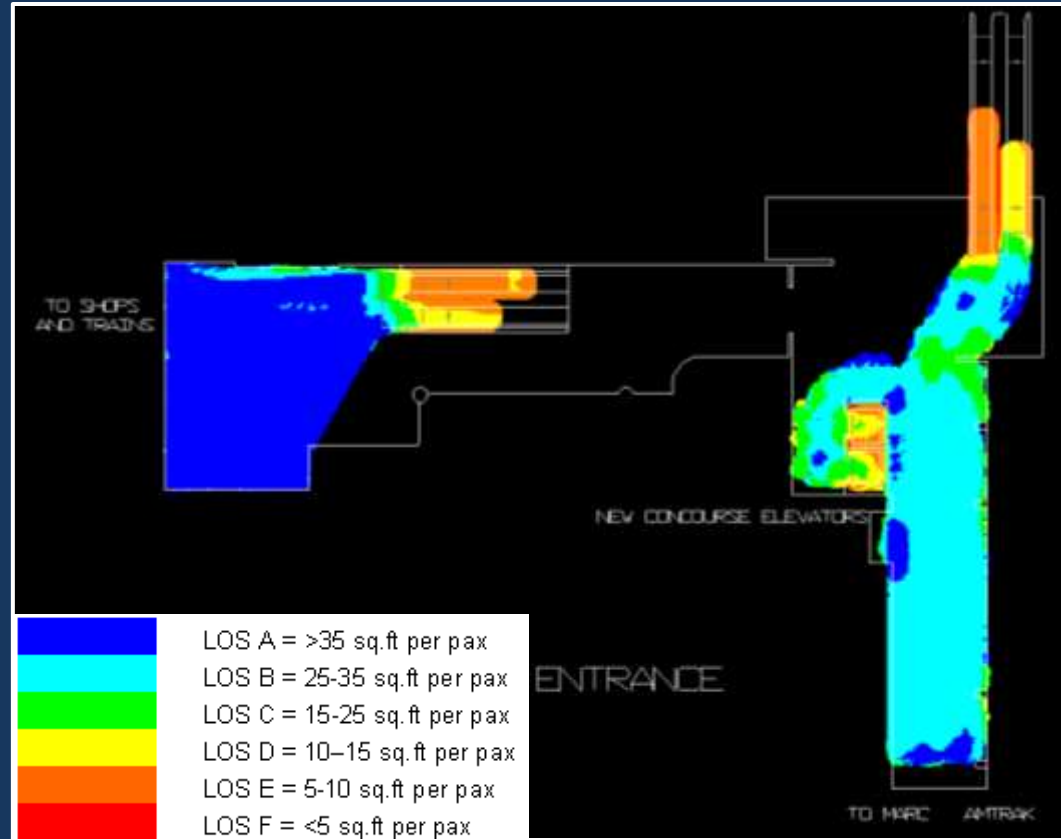
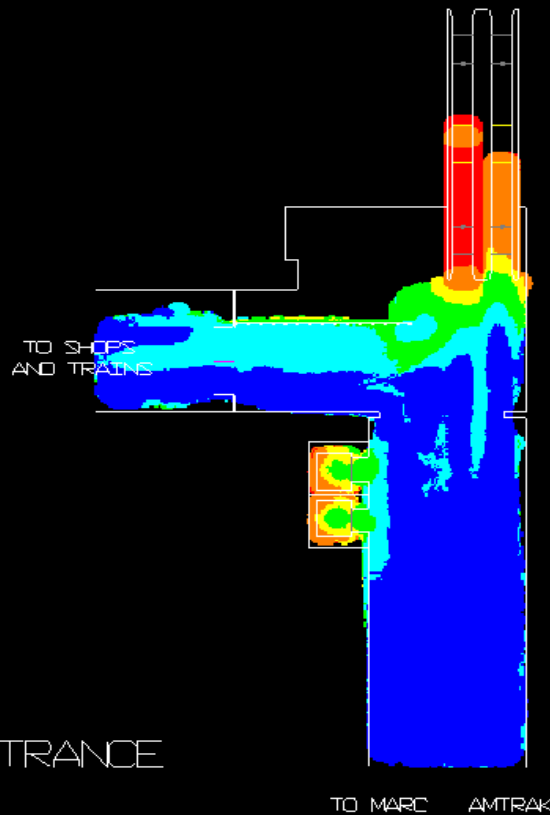


Access and Capacity Improvements 2030 Conditions

Amtrak Concourse

Partial Build

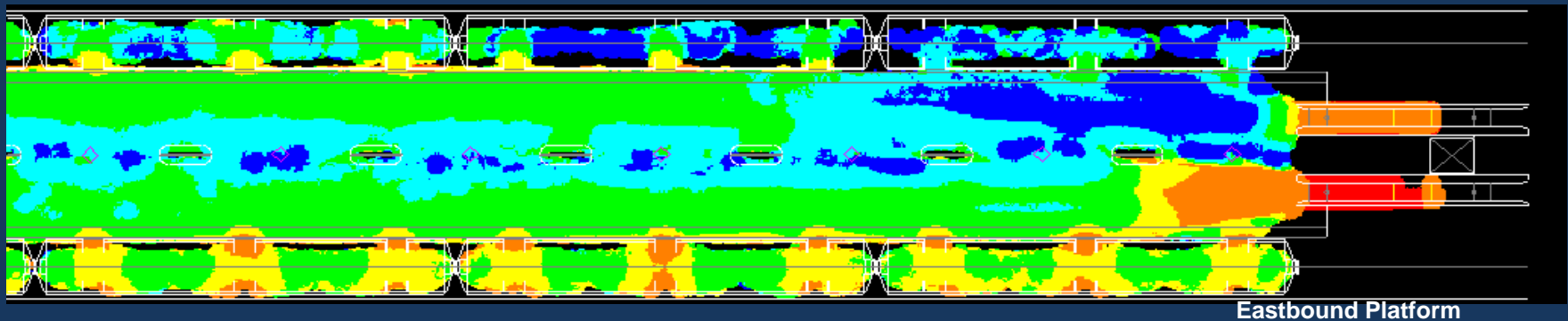
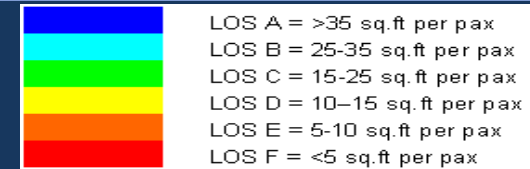
Full Build



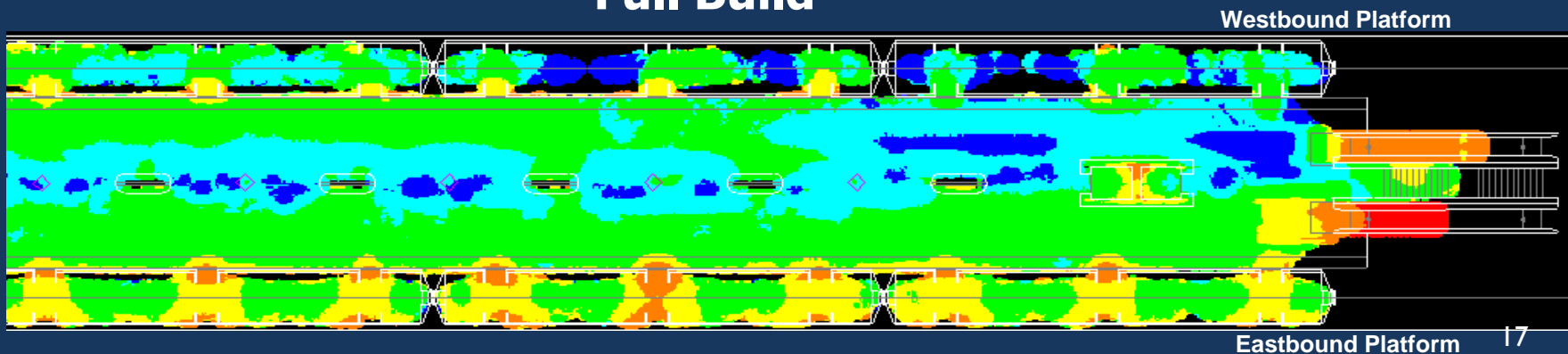


Access and Capacity Improvements 2030 Conditions

Metrorail Platform Partial Build



Full Build



Access and Capacity Improvements First St. Entrance



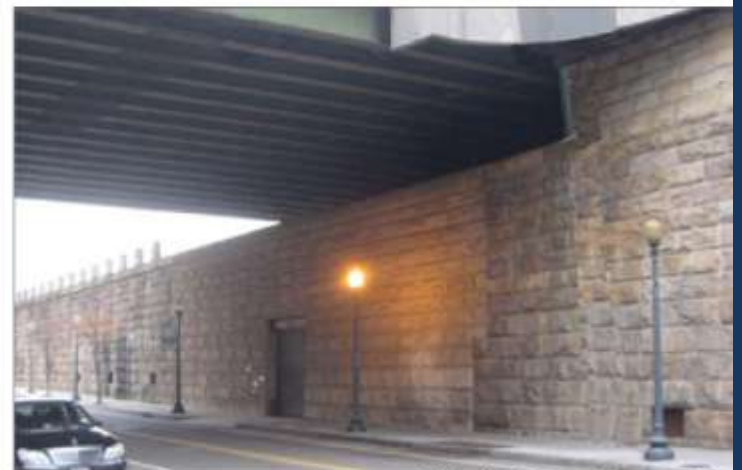
1st Street North Mezzanine Entry Concept



1st Street North Mezzanine Entry Concept



1st Street North Mezzanine Entry Concept



Existing Wall at Proposed Passageway Access



Costs and Benefits

	Partial Build	Full Build
Capital Costs (FY10 Dollar)	\$28.5 million	\$35.8 million
Benefits		
Capacity	Moderate capacity expansion on mezzanine level. No improvements on platform	Significant capacity expansion on all 3 levels of north mezzanine: mezzanine, platform and concourse
Access	<ul style="list-style-type: none"> • Direct link to new development, streetcar & intercity bus terminal 	<ul style="list-style-type: none"> • 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 (Person-Hours)	<ul style="list-style-type: none"> • H St. passageway: annual savings of 99,500 person-hours 	<ul style="list-style-type: none"> • H St. passageway: same as Partial Build • 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

