



Finance and Capital Committee

Information Item IV-A

July 23, 2026

Rail Modernization Update



Board Document

OVERVIEW			
PRESENTATION NAME	Rail Modernization Update	DOCUMENT NO.	300142
ACTION OR INFORMATION	Information		
STRATEGIC TRANSFORMATION PLAN GOAL	Service Excellence, Talented Teams, Financial & Organizational Efficiency		
RESOLUTION	No		
EXECUTIVE OWNER			
EXECUTIVE TEAM OWNER	Off, Andy		
DEPARTMENT	Deputy General Manager		
DOCUMENT INITIATOR	Cesari, Jill		
OTHER INFORMATION			
COMMITTEE	Finance & Capital	COMMITTEE DATE	07/23/2026
PURPOSE/KEY HIGHLIGHTS	To update the Board on the Rail Modernization Program, including: ▪ Overview of the APTA Peer Review of Metro’s Rail Modernization program ▪ Hear from two of the peer review panelists on the findings and recommendations from the review ▪ Introduce the concept design for the platform door element of the Rail Modernization Program Metro provided the Board with a quarterly update in June; however, because of the timing of the APTA Peer Review, this presentation is coming out of the normal quarterly update cycle.		
DISCUSSION	APTA Peer Review Summary Metro is a continuously learning organization and seeks to learn from the peer systems around the country and the world. One tool to assist		

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in learning that Metro has used previously is a peer review, bringing in experts from peer agencies to review a program or project and make recommendations.

In January 2026, Metro requested that the American Public Transportation Association (APTA) conduct a peer review of the planning process and efforts for the Metro's Rail Modernization Program, and the Red Line Modernization project. Metro's request to APTA included a review of Metro's program planning, technical development, mitigation strategy, as well as governance and program management.

Each of the participating peer review agencies were selected due to their direct and recent experience with similar projects and programs to Metro's Rail Modernization program. The peer systems each have experience with some combination of automated operations, complex re-signaling retrofit projects, or installation and operation of platform doors as a part of their systems.

The panel included five experts from four agencies, including Honolulu Authority for Rapid Transportation (HART), Metroselskabet (Copenhagen Metro), London Underground, and Metro de Madrid.

The Board will hear directly from two of the panelists:

- Matias Rasmussen, M5 Line Manager and Acting Head of Transportation Systems with Metroselskabet (Copenhagen Metro)
- Lincoln Ofokansi, Head of Program, Signaling & Communication with Transport for London (TfL)

Generally, the peer review team found Metro to be at the right stage of planning for this program, and that the Red Line is the right line for starting system-wide modernization. They are also supportive of the strategy to aim for the highest grade of automation and recommend Metro perform a cost analysis of installing platform doors at all 27 stations on the Red Line.

Platform Door Concept

In addition to presenting the APTA peer review, Metro is also introducing the baseline concept for platform doors for the Rail

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	Modernization Program. Platform doors are the critical path element for Federal reviews and the NEPA process; other elements like communications-based train control (CBTC), railcars, and supporting systems are unlikely to present major issues for regulatory and historic reviews. After evaluating different platform door typologies, Metro is planning to install partial height platform doors based on their design features for retrofitting existing rail stations, minimal station ventilation impact, moderate installation risk, and significant safety benefit. The baseline concept for the partial height platform doors will honor Metro’s architectural legacy and adhere to world-class standards. All current functionalities of the platform edge will be maintained using modern platform doors. Although platform doors already improve safety and accessibility to Metro stations by eliminating risk of falling onto the track, Metro is also considering additional accessibility and wayfinding features. The baseline concept could incorporate wayfinding as the design develops through further stakeholder engagement. This baseline concept is the starting point for the review process. The Concept design will continue to evolve as Metro engages with stakeholders, as outlined in the engagement strategy. This will include continued engagement with the Federal Transit Administration (FTA), Accessibility Advisory Committee (AAC) (to support further concept development), Riders’ Advisory Council (to support public comment and public hearing requirements), staff-level meetings with the Commission of Fine Arts (CFA) and State Historic Preservation Offices (SHPOs), and National Capital Planning Commission (NCPC) staff.
INTERESTED PARTIES	Current interested parties include: Deutsche Bahn E.C.O. NA, Hitachi, Kawasaki, Alstom, Knorr-Bremse, Parsons Transportation, HNTB, Mott McDonald, TY Lin, RK&K, Systra Prospective interested parties include (not exhaustive): Alstom, Hitachi, Mitsubishi Electric Power Products, Siemens Mobility, Stadler, Cisco Systems, Mass Electric Construction (MEC),

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	AtkinsRealis, Burns Engineering, Egis, Mott MacDonald, MW Consultants, Network Rail Consulting, Radix, RL Controls, Systra, TYLin, WSP, Doorspec, ITNova, Knorr, ST Engineering, Stanley Access, WooJin IS America Inc., QEI Automation Solutions, M.C. Dean, STraffic, Aldridge Electric, C3M Power Systems, Halmar International, Kiewit, Gilgen Door Systems, Horton Automatics, Wabtec
RECOMMENDATION/NEXT STEPS	Next Steps: After this public session, Rail Modernization will return to its normal reporting cycle, with the next quarterly update scheduled for October 2026. The October Update will include: ▪ Further development of the platform door concept design ▪ Updates on stakeholder engagement activities and key feedback received ▪ Progress on federal review requirements, including ongoing National Environmental Policy Act (NEPA) activities and related milestones
FUNDING IMPACT	No funding impact – informational updates only.

Rail Modernization Update



Finance and Capital Committee

Washington Metropolitan Area Transit Authority

July 23, 2026

Delivering Your Metro, the Way Forward

Focus
Today



Service Excellence

Deliver safe, reliable, convenient, accessible, and world-class service that customers can trust across all modes.

Objectives of Service Excellence Goal

- **Safety and Security**
- **Reliability**
- **Convenience**



Talented Teams

Attract, develop, and retain world-class talent where individuals feel valued, supported, and proud of their contribution.

Objectives of Talented Teams Goal

- **Recruitment and Retention**
- **Learning and Development**
- **Customer Service Mindset**



Financial & Organizational Efficiency

Steward public resources and efficiently allocate resources where they drive the most value, to ensure service delivery.

Objectives of Financial & Organizational Efficiency Goal

- **Financial Responsibility**
- **Organizational Efficiency**
- **Energy Management**

Overview

Purpose: Provide an update on the following Rail Modernization efforts:

- Summary of the American Public Transportation Association (APTA) peer review of Metro's planning for the Red Line Rail Modernization Project
- Initial platform door concept development



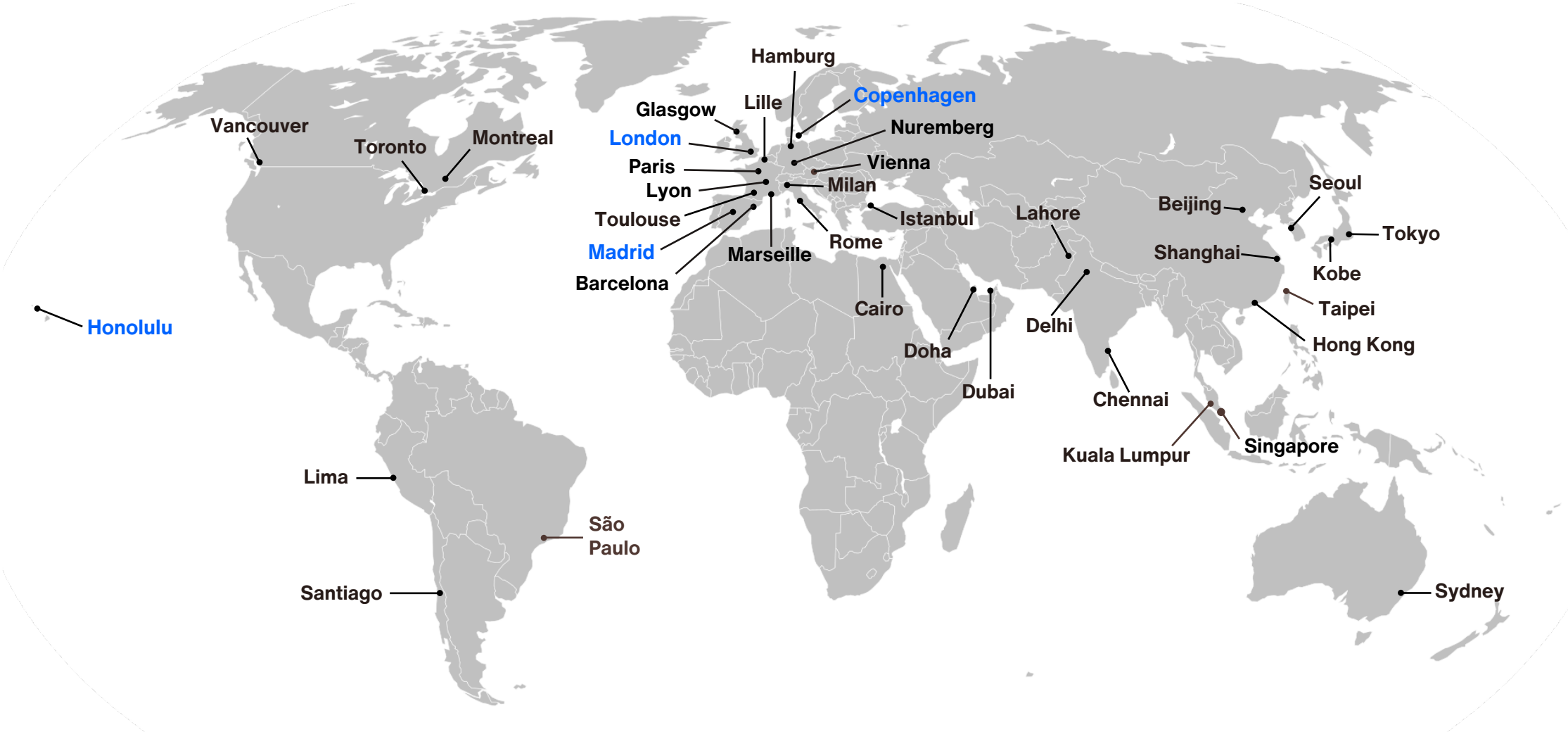
APTA Peer Review Report

APTA Peer Review Background

- Metro is a continuously learning organization
- **Rail Modernization planning has benefited from three years of engagements with other peers** such as NY Metropolitan Transportation Authority, Bay Area Rapid Transit, and Community of Metros (COMET) among others
- American Public Transportation Association (APTA) Peer Review Program is a well-established and industry accepted program
- **In January 2026, Metro requested APTA to conduct a review** of the planning process and efforts for the Red Line Rail Modernization Project focused on the following topics:
 - Program Planning
 - Technical Development
 - Mitigation Strategy Assessment
 - Governance and Program Management
- APTA Peer Review enabled Metro to receive feedback and lessons learned from **peer agencies that have completed or are in progress of rail modernization initiatives**

Invitations to Select Peer Agencies sent in Feb 2026

Selection of Grade of Automation 3/4 (GoA 3/4) lines, current and in development



Metro hosted APTA and peer agencies Apr 27-May 1

HART (Honolulu Authority for Rapid Transportation)



Operates fully automated GoA4 lines.

Mr. Vance Tsuda
(Project Director)

Metroselskabet (Copenhagen Metro)



Fully automated system operating at GoA4

Mr. Matias Sevel Rasmussen
(Ph.D. M5 TS/OM Manager and Acting Head of Unit)

London Underground



Primarily operates under GoA2/3 automation

Mr. Lincoln Ofokansi
(TfL Head of Program, Signaling & Communication)

Metro de Madrid



Primarily GoA2 operations; transitioning to GoA4 by July 2027

Mr. Carlos Esquiroz Sors
(Director of Automation)

Mr. Santiago Rincón Arévalo
(Head of Railway Systems Engineering)

Washington Metropolitan Area Transit Authority (WMATA)

Peer Review on Rail Modernization Program

Held between April 26th to May 1st, 2026



American
Public Transportation
Association



July 23rd, 2026

Peer Agencies Representatives



Matias Sevel Rasmussen (Ph.D. M5 Line Manager and Acting Head of Unit)

- Acting Head of Transportation Systems & M5 TS/OM Manager, Metroselskabet.
 - 15+ years of experience in automated metro systems, Communications Based Train Control (CBTC), and railway operations.
 - Leads transportation systems integration for the M5 metro while having delivered CBTC re-signaling, GoA4 operations, and international automation initiatives.
-



Lincoln Ofokansi (Head of Program, Signaling & Communication)

- Head of Program, Signaling & Communications, Transport for London (TfL).
- Nearly 40 years of railway infrastructure and signaling experience.
- Leads major signaling modernization programs, including the Central Line upgrade, with previous leadership on the Jubilee Line, Victoria Line, and Bank Station upgrades.

Program Planning and Migration Strategy

The peer review team found Metro to be at the right stage of planning for this program

Validations by Peer Review

- **Project Phasing** – Red Line, compared to others, is the right line for starting system-wide modernization
- **GoA4 Vision** – Supportive of the strategy to aim for the highest grade of automation
- **Procurement strategy** – overall procurement strategy and procuring to performance-based requirements
- **Concept of Operation** – WMATA is in the process of developing a Concept of Operation which will be utilized for the new system requirements
- **Space planning assessments** – focused on identifying locations to put new equipment

Recommendations

- **Platform Doors** – Perform a cost analysis of installing platform doors at all 27 stations
- **Early Supplier Engagement** – Engage suppliers early to maximize benefit for concept development
- **Maintenance planning** – Contract for options that include long-term technical expertise support
- **Concept of Operation** – Include maintenance
- **Level of Disruption / Outages plan** – Determine Metro's strategy for disruption to effectively plan and perform related construction

Technical Development and Robustness

Complex program requires strong stakeholder management and workforce planning

Validations by Peer Review

- **Test track** – Use of the Greenbelt test track for testing prior to any testing on the Red Line is an effective way to reduce risk
- **Fleet technical assessment** – Engagement with the railcar manufacturers for assessing required changes to retrofit the cars with Grade of Automation Level 4 (GoA4) equipment reduces risk
- **Independent Safety Assessor (ISA)** – Best practice approach to contract an ISA to support the safety certification process
- **Delivery Approach** – Extensive use of cross-functional working groups during the project provides expertise and will result in ownership upon conclusion of the project

Recommendations

- **Test track** – Schedule adequate testing time for the project to reduce potential conflict with another project
- **Existing Systems' Reliability** – Assess upgrades or modifications needed to improve supporting systems' reliability for GoA4 operation, such as rail cars
- **Fleet Retrofit Site Capacity** – Assess rail yard capacity for field modification on the railcars
- **Workforce Planning** – Assess new roles and skill sets to support GoA4 operations and maintenance, plan for new training, and continuous engagement with workforce

Continuous Rail Modernization Advancement

All APTA peer review recommendations are in progress or planned and will be accomplished during the relevant phases of the program

Completed Actions:

- Current Concept of Operations (ConOps) – Feb 2026
- Industry day as part of supplier engagement – Mar 2026
- Engaged Hitachi and Kawasaki to conduct technical assessments to integrate future systems – May 2026

Actions in Progress:

- Future Concept of Operations (ConOps) – Nov 2027
- Independent Safety Assessor Contract Award – Summer 2027



Kastrup Station (Copenhagen Metro), with platform doors – 2015

Platform Door Concept



Rail Modernization Directly Addresses Metro's Key Challenges

Investment in modern, automated systems is the path to world-class transit

Metro has a unique opportunity to align needed investments in our major systems (railcars and signals) by upgrading our capabilities with next-generation technology.

Benefits from modernization and automation can transform Metro's operations in four key areas:

1. **Safer:** reduce staff on roadway, keep trespassers off tracks, reduce track fires
2. **More Reliable:** increase service reliability up to 99% with precision operation and dynamic adjustments with less physical infrastructure to maintain
3. **Greater Capacity:** faster trips and more trains running per hour
4. **More Efficient:** more productive service with the same assets and lower operating costs; growing ridership and revenue

Program Elements

Signals



Fleet



Stations/Platforms



Operations



Platform doors provide stand-alone benefits and enable automated operations

Platform doors enhance safety, reliability, and quality of experience and are a new global standard for rail transit platform amenities

Safety

- Provides a physical barrier between customers and moving trains reduces risk of injury or death

Metro Safety Data	2024	2025	2026 (July)
Fatalities	6	8	10
Injuries	6	10	5
Trespasses	123	123	84 (1/1/26-7/9/26)

System Reliability

- Prevents intrusions onto the track and limits trash and debris, preventing delays
- Trains can safely enter and depart stations at full speed, even with crowded platforms

Quality of Experience

- Customers feel safer on crowded platforms
- Peer agencies show platform door-enabled rail lines are rated highest for customer satisfaction



Partial Height Doors - Honolulu Area Rapid Transit (HART)

Metro is a Steward of a System Built for the Future

The Rail Modernization Program intends to honor Metro's architectural legacy while adopting world-class standards

Use of federal funds requires adhering to the federal planning process. Metro is in discussions with the Federal Transit Administration (FTA) about compliance with the National Environmental Policy Act (NEPA) and related laws and regulations.

National Environmental Policy Act (NEPA):

Establishes the framework for federal decision-making and consideration of potential environmental impacts.

Includes compliance with related laws/ regulations:

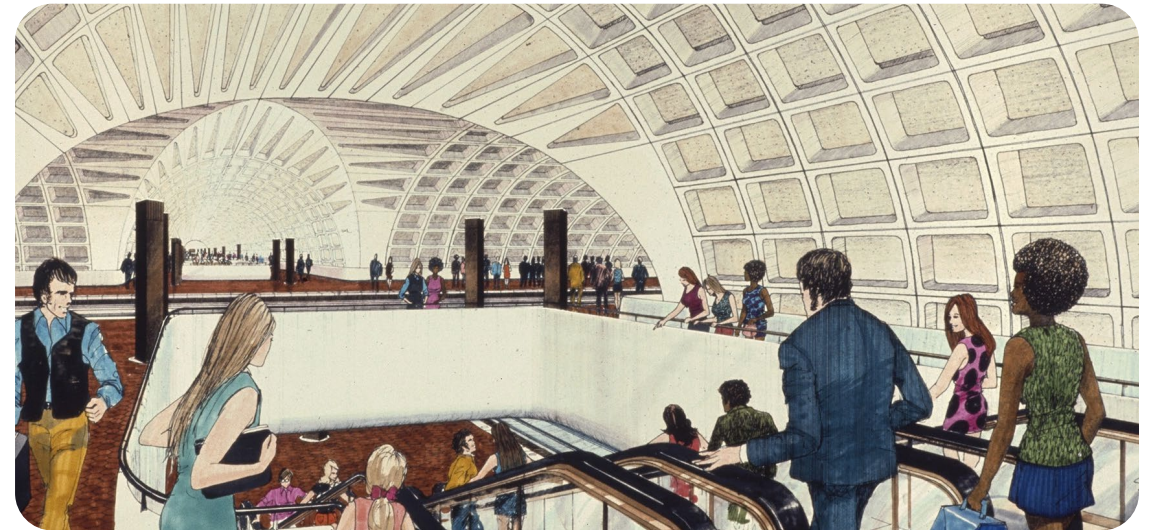
Section 106 of the National Historic Preservation Act

Section 4(f) of the Department of Transportation Act

As a project within Washington's Monumental Core, Metro will engage with:

United States Commission of Fine Arts (CFA): reviews designs and aesthetics of projects within Washington

National Capital Planning Commission (NCPC): planning agency for the National Capital Region



Platform Doors will be the primary area of focus for environmental review

Red Line Modernization Project Elements

- **Communications-Based Train Control (CBTC) Installation:**
 - Entire Red Line (32 miles, 27 stations)
 - 3 rail yards (Shady Grove, Glenmont, Brentwood)
 - Greenbelt test track
- **Railcar Conversions:**
 - Mix of 7000-Series and 8000-Series cars
- **Supporting Systems Installation:**
 - Connect new systems to the Metro Integrated Command and Communications Center (MICC)
 - Upgrade existing technical systems to improve monitoring and control operations
- **Platform Doors :**
 - Install platform doors at stations

CBTC, railcars, and supporting systems are unlikely to present major issues for regulatory and historic reviews:

- Clearly exempt categories
- Non-public spaces
- Non-historic resources

Platform Doors are the critical path element:

- Historic preservation review (NEPA/Section 106)
- Commission of Fine Arts review
- Construction impacts

Platform Door Terminology

Systems around the world use different names for various platform door designs, depending on station locations, architecture, and installation timing

Platform Screen Doors

Full height doors & barrier; completely separates track from platform



Transport for London: Elizabeth Line
Trackway completely enclosed

Platform Edge Doors

Full height doors & barrier;
open air trackway



Paris Metro: Line 14
Total height: ~ 8.2 ft

Partial Height Platform Doors

Head/shoulder height doors & barrier;
open air trackway



Sydney Metro: M1
Total height: ~5.5 ft

Types of Platform Doors

Systems around the world use different names for various platform door designs, depending on station locations, architecture, and installation timing

Platform Screen Doors

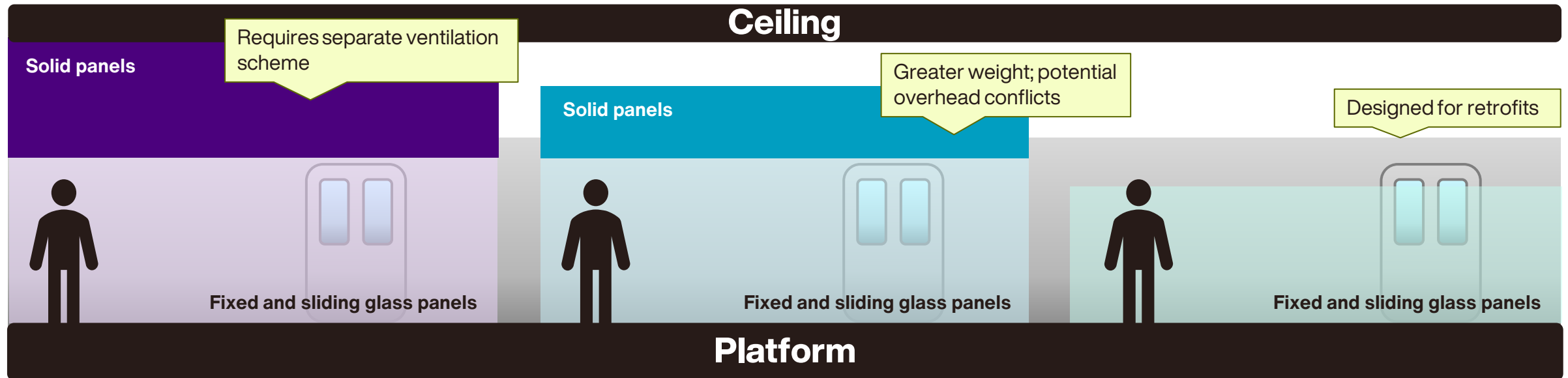
Full height doors & barrier; completely separates track from platform

Platform Edge Doors

Full height doors & barrier; open air trackway

Partial Height Platform Doors

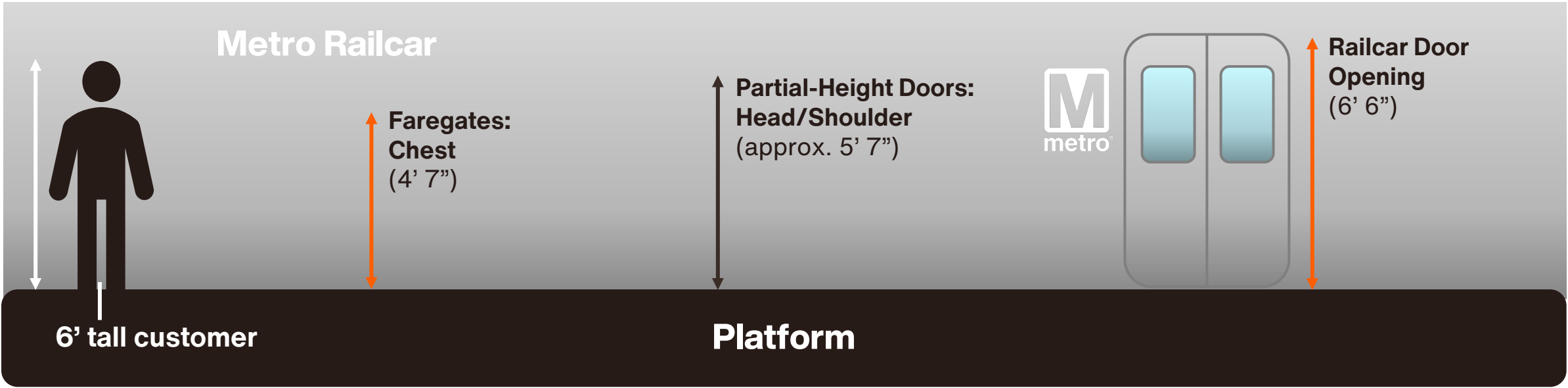
Head/shoulder height doors & barrier; open air trackway



Planning to install **partial height platform doors** based on their design features for retrofitting existing rail stations, minimal station ventilation impact, moderate installation risk, and significant safety benefit.

Platform Door Height Context

Partial-height platform doors are designed for existing rail station applications



Current Platform Edge Functions

Current design has three primary functions: tactile warning, visual contrast, and train arrival



1

Tactile Warning
Truncated dome tiles

2

Visual Contrast
Granite color contrast
Circular lights

3

Train Arrival Indication
Circular lights (flashing)

Future Platform Edge Functions

All original and current functionality is maintained using modern platform doors



1

Tactile Warning *

While not required by Americans with Disabilities Act 810.5.2 and National Fire Protections Act 130 A.5.3.10, truncated domes indicate door opening location

2

Visual Contrast

Provided by the doors, framing and door panel lights

3

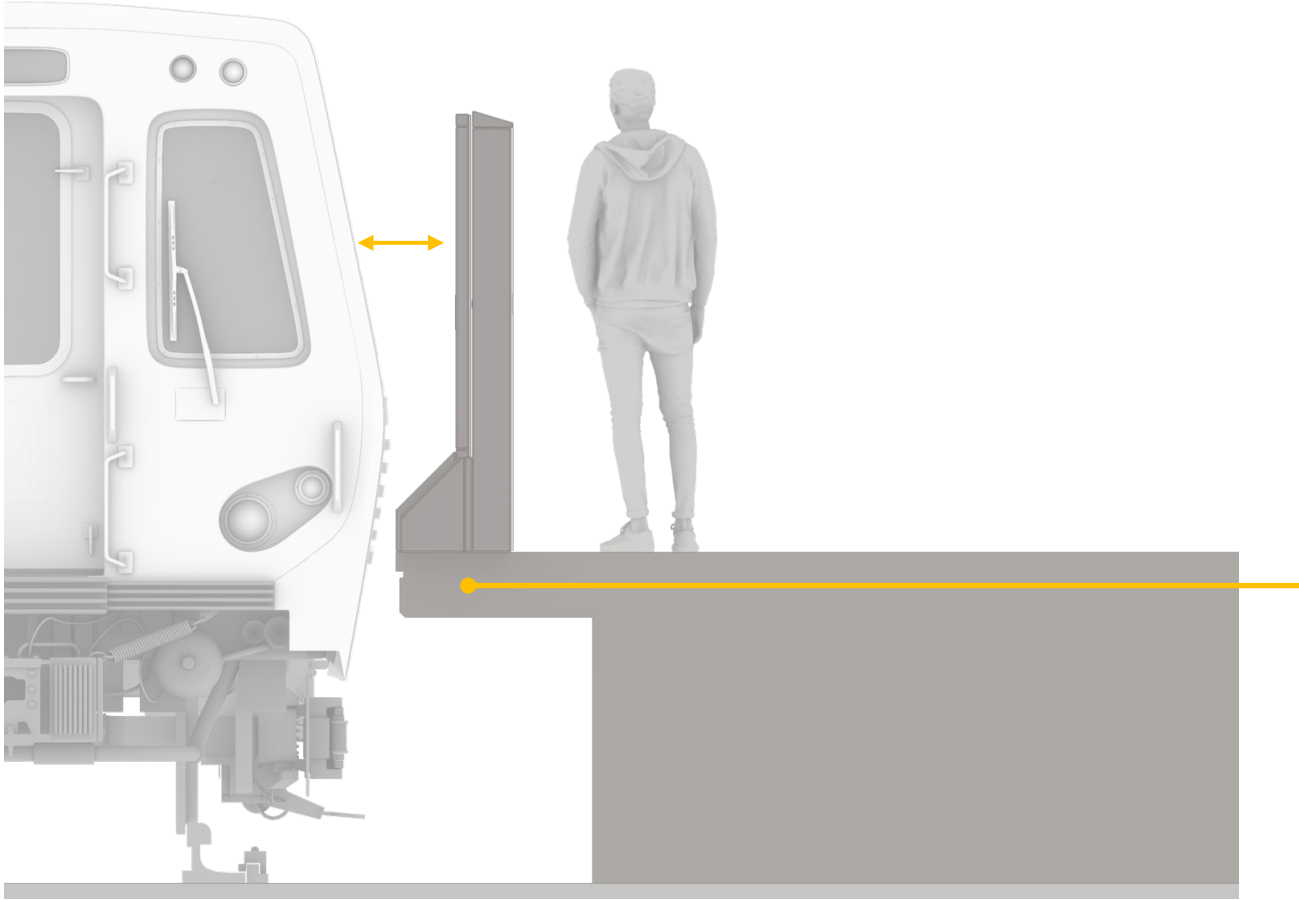
Train Arrival Indication

Door indicator lights

***Tactile warning changes shown here represent a baseline concept which may incorporate wayfinding through the process of stakeholder engagement**

Door Placement at the Edge

Requires removal of the granite and the edge lights, and installation of a cement edge for structural support and placement of door components

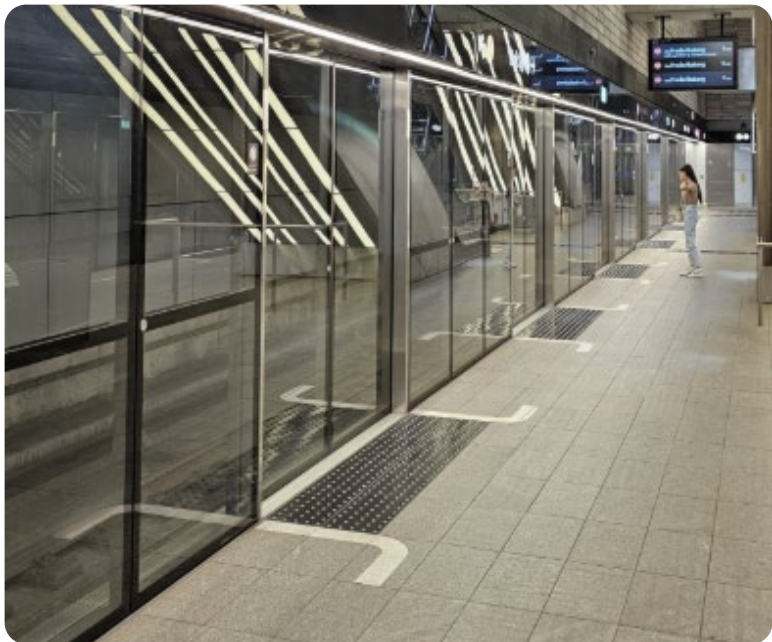


Horizontal Door Placement Considerations:

- Minimize risk of entrapment between the platform door and the train
- Maintain safe distance from the train
- Secure the door modules through the concrete

Peer examples of platform door and wayfinding

Platform doors already improve accessibility to Metro stations by eliminating risk of falling onto the track, but Metro is also considering additional accessibility and wayfinding features.



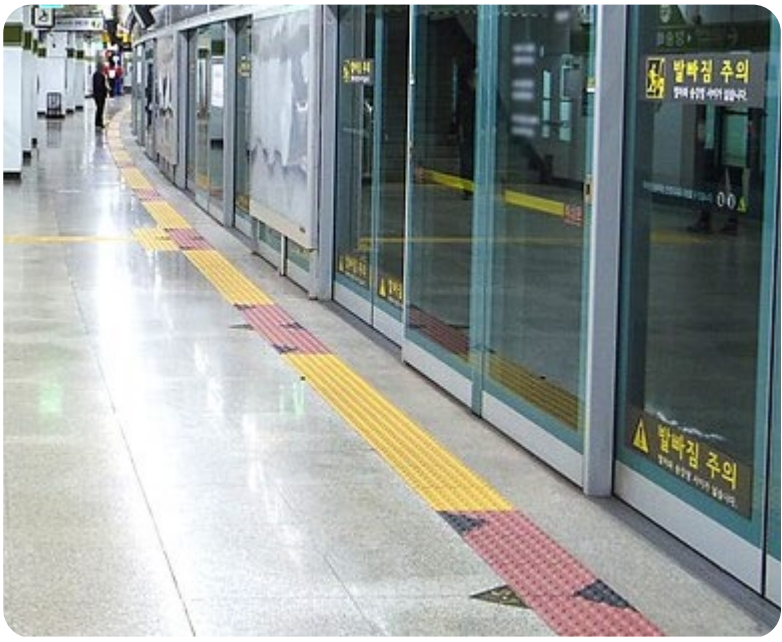
Copenhagen Metro

Wings and tactile strips



Hong Kong Metro

Arrows behind tactile strips

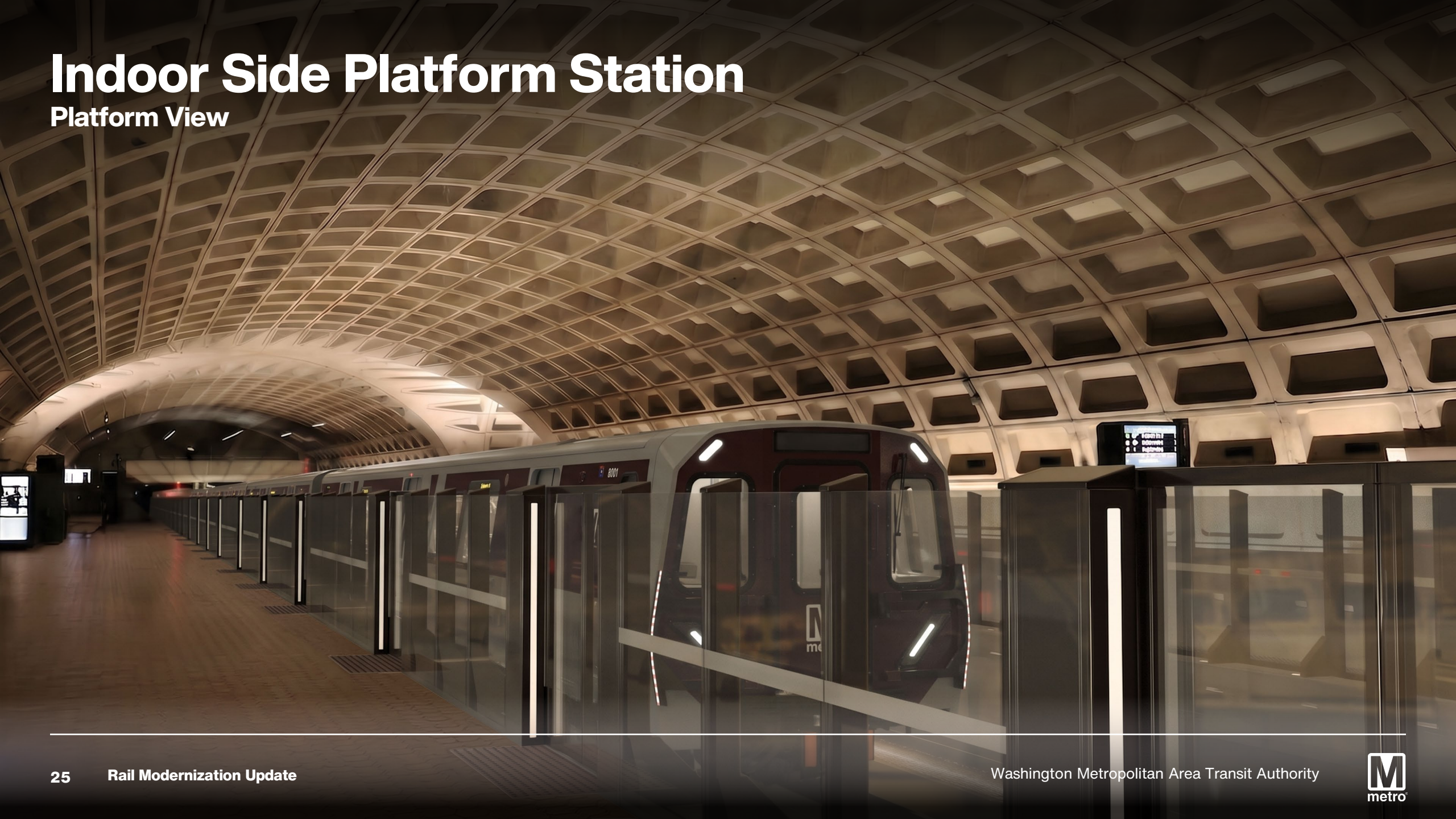


Seoul Metro

Triangles within tactile strips

Indoor Side Platform Station

Platform View



Outdoor Center Platform Station

Platform View



Platform Door Design Evolution

Concept Design is the starting point for the review process

Design Considerations

- Architectural
- Structural
- Station Lighting
- Noise
- Ventilation/ Airflow

Efforts In Progress

- Surveys
- Structural Assessments
- Historical considerations

Stakeholder Engagement

- Advisory Councils
- State Historic Preservation Offices
- Commission of Fine Arts (CFA) on Sept 3

Stakeholder Engagement Strategy

Federal Government

- Continue to engage with **Federal Transit Administration** (FTA) staff
- Work with FTA to initiate Section 106 process

Key Customer Advisory Groups

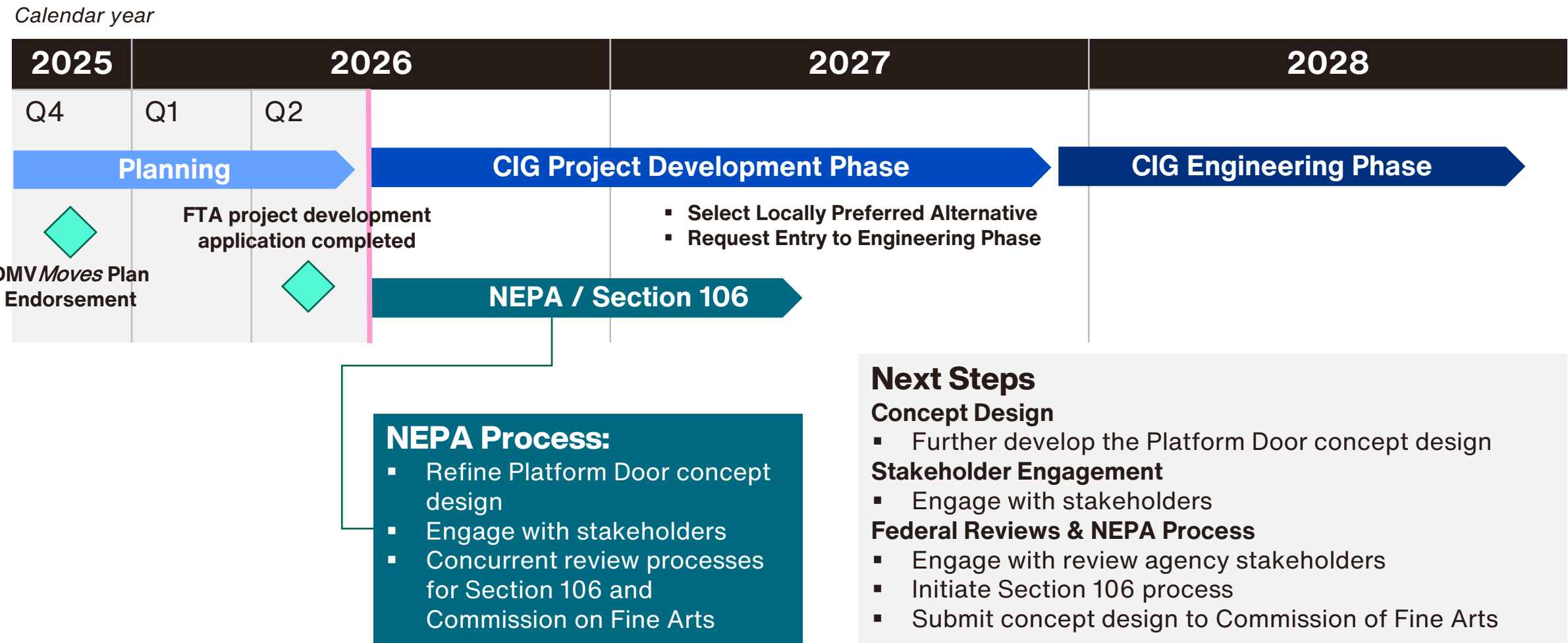
- Involve the **Accessibility Advisory Committee** (AAC) in concept development
- Engage **Riders' Advisory Council** (RAC), focus on formats to support public comment & public hearing requirements

CFA, NCPC & SHPOs

- Staff-level **Commission of Fine Arts** (CFA) / **State Historic Preservation Offices** (SHPOs) meeting in August prior to submission of conceptual design
- Outreach to **National Capital Planning Commission** (NCPC) staff

Metro is moving forward on Rail Modernization

Planning to engage with stakeholders beginning this summer



Appendix

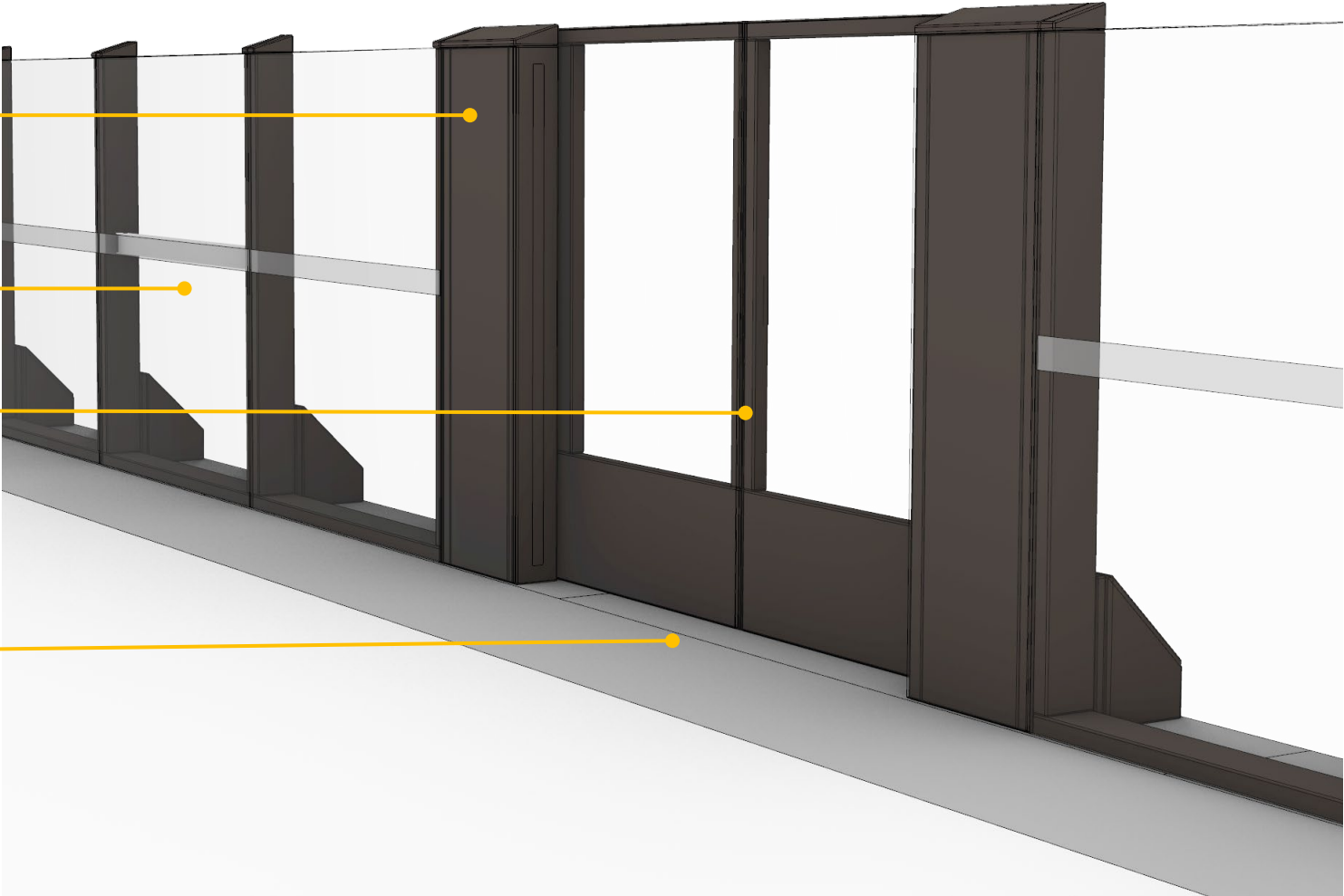
Platform Doors – Main Functional Elements

Towers that hold motors but typically accommodate passenger info (static or dynamic)

Emergency Egress Doors

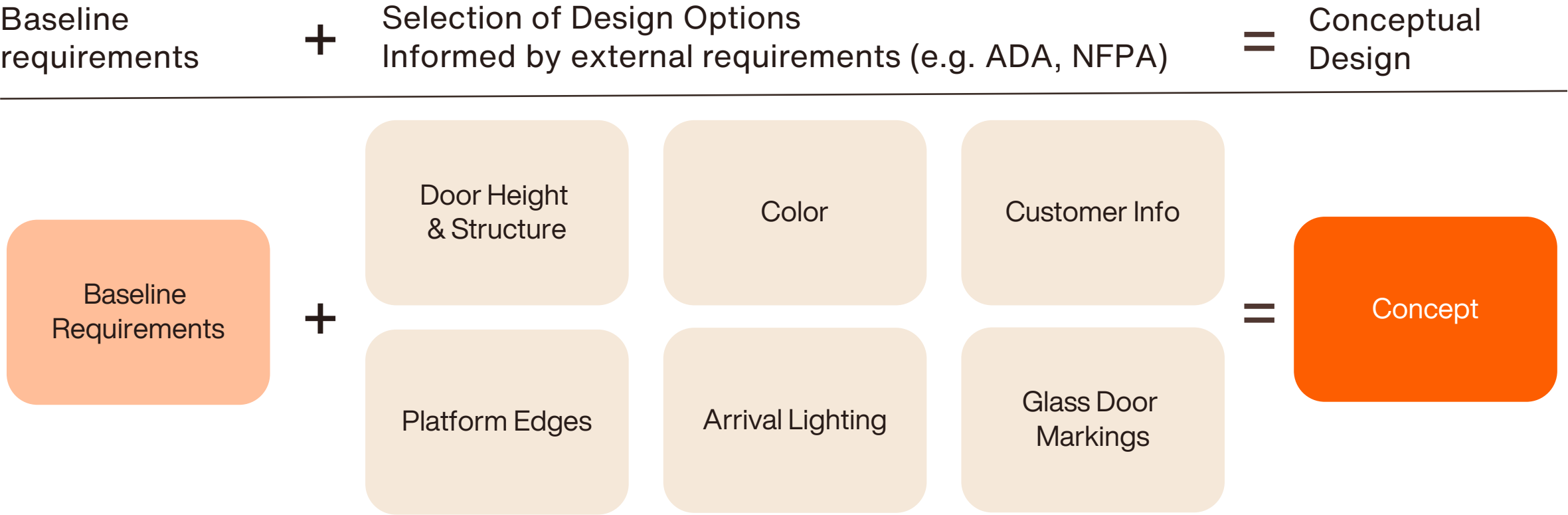
Motorized Sliding Doors (boarding and alighting)

Allocate space for floor finishes (e.g., tactile warning surfaces and granite), address current arrival lighting



Concept Design Components

Floor finishes near the Platform doors are a critical focus due to historic considerations



Flooring: Applicable Standards

Although not required by standards, Metro plans to integrate tactile warnings in front of

NFPA 130

A.5.3.10: *Tactile and visual warning should be provided along the trainway side of platforms **except** where such edges are protected by platform edge screens or doors.*



No need for tactile warning

ADA Standards for Accessible Design 2010

810.5.2 Detectable Warnings: *Platform boarding edges not protected by platform screens or guards shall have detectable warnings complying with 705* along the full length of the public use area of the platform.*

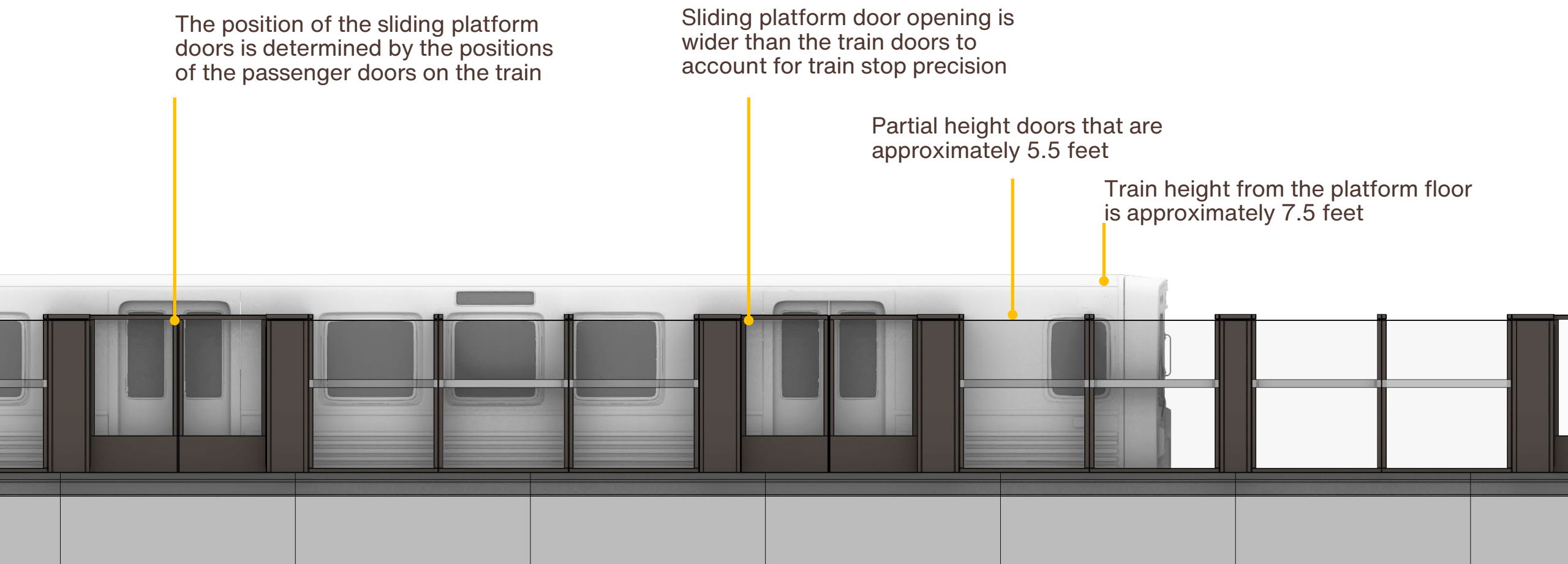


No need for consistent detectable warnings

(*) Detail in next slide

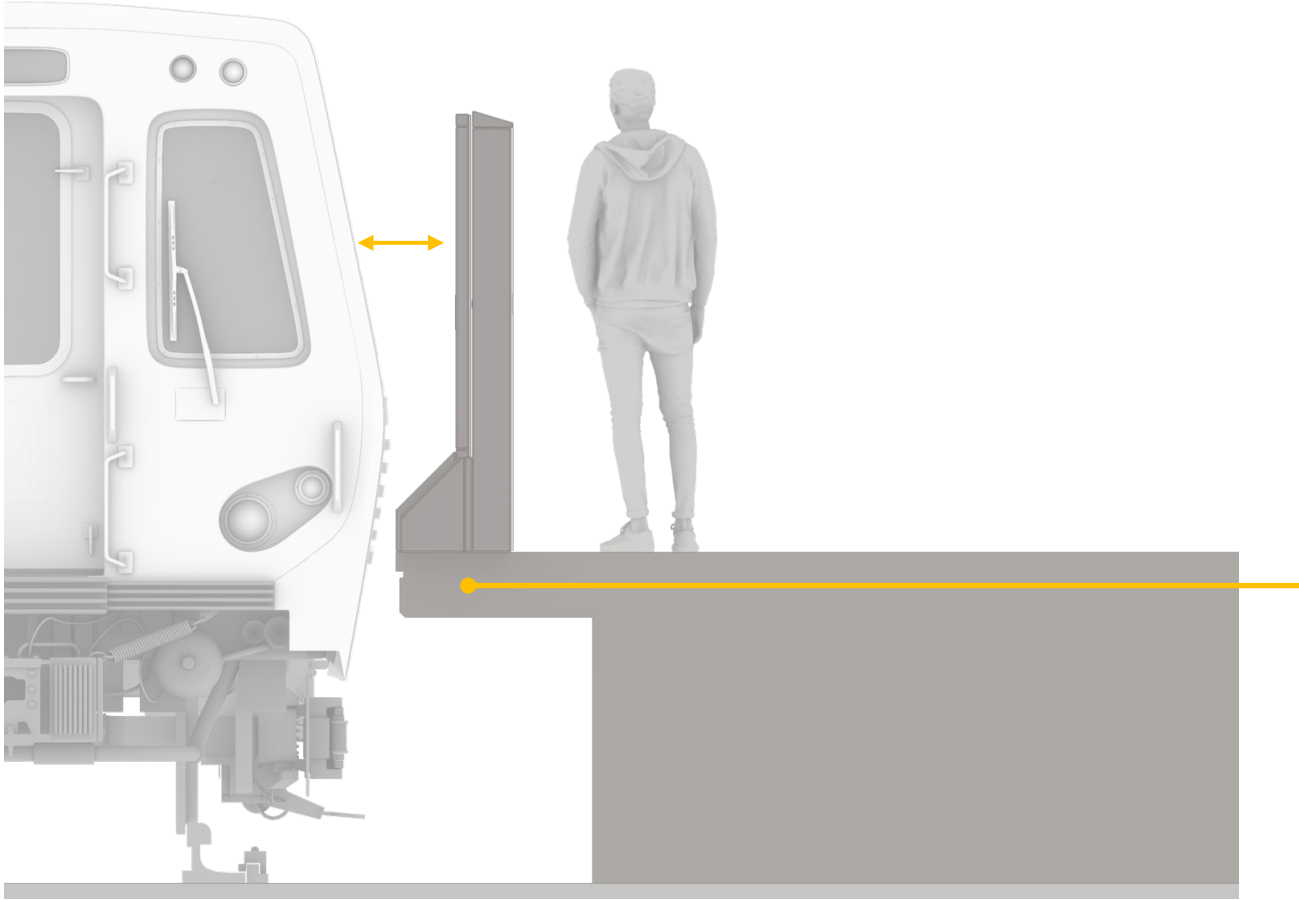
Position and Dimensions

Door locations and dimensions must align with door spacing of Metro's railcars



Door Placement at the Edge

Requires removal of the granite and the edge lights but the functionalities are maintained



Horizontal Door Placement Considerations:

- Minimize risk of entrapment between the platform door and the train
- Maintain safe distance from the train
- Secure the door modules through the concrete

Partial Height Platform Doors best meet Metro’s goals

Evaluation of Platform Door Types for Metro’s Rail Modernization Program

-  +	Safety Benefits	Installation Risks for Retrofits	Use in Retrofits	Ventilation Impacts
Platform Screen Doors (PSDs)	Highest	Infeasible - must be integrated into station architecture	Rarely	Infeasible – requires separate ventilation scheme
Platform Edge Doors (PEDs)	Highest	High – greater weight, larger structure & potential conflicts	Sometimes	Moderate to large – depends on station conditions
Partial Height Platform Doors	High	Moderate	Yes – designed for retrofits	Moderate

Metro is considering **partial height platform doors** given their design for retrofits, minimal ventilation impact, moderate installation risk, and high safety benefit.

Platform Edge: Current Design

Lighting: Existing 6' circular lights provides train arrival feedback to customers

Visual contrast:
White Granite

Tactile Warning: truncated dome tiles at platform edge

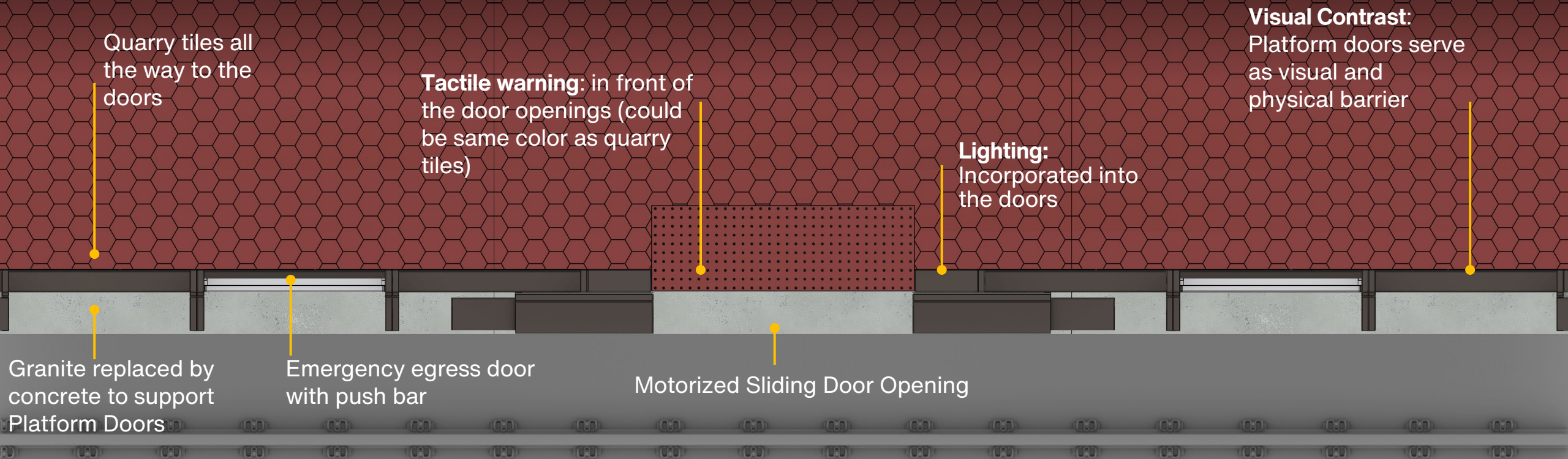
Key considerations:

- Doors must be positioned at the platform edge
- Not feasible to install doors on top of existing granite
- Tactile warning not required when platform doors are present (ADA & NFPA standards)

Area subject to change:
Granite edge and tactile tiles

Baseline Concept

Similar to Copenhagen, Sofia, REM Montreal, and HART



Platform Door Design Roadmap

Concept Design is the starting point for the review process

