



Washington Metropolitan Area Transit Authority

Major Red Line Construction

Customer Service and Operations Committee

October 9, 2014



Purpose

To brief the Board on upcoming Purple Line interfaces, Medical Center water infiltration, and other needed Red Line upgrades

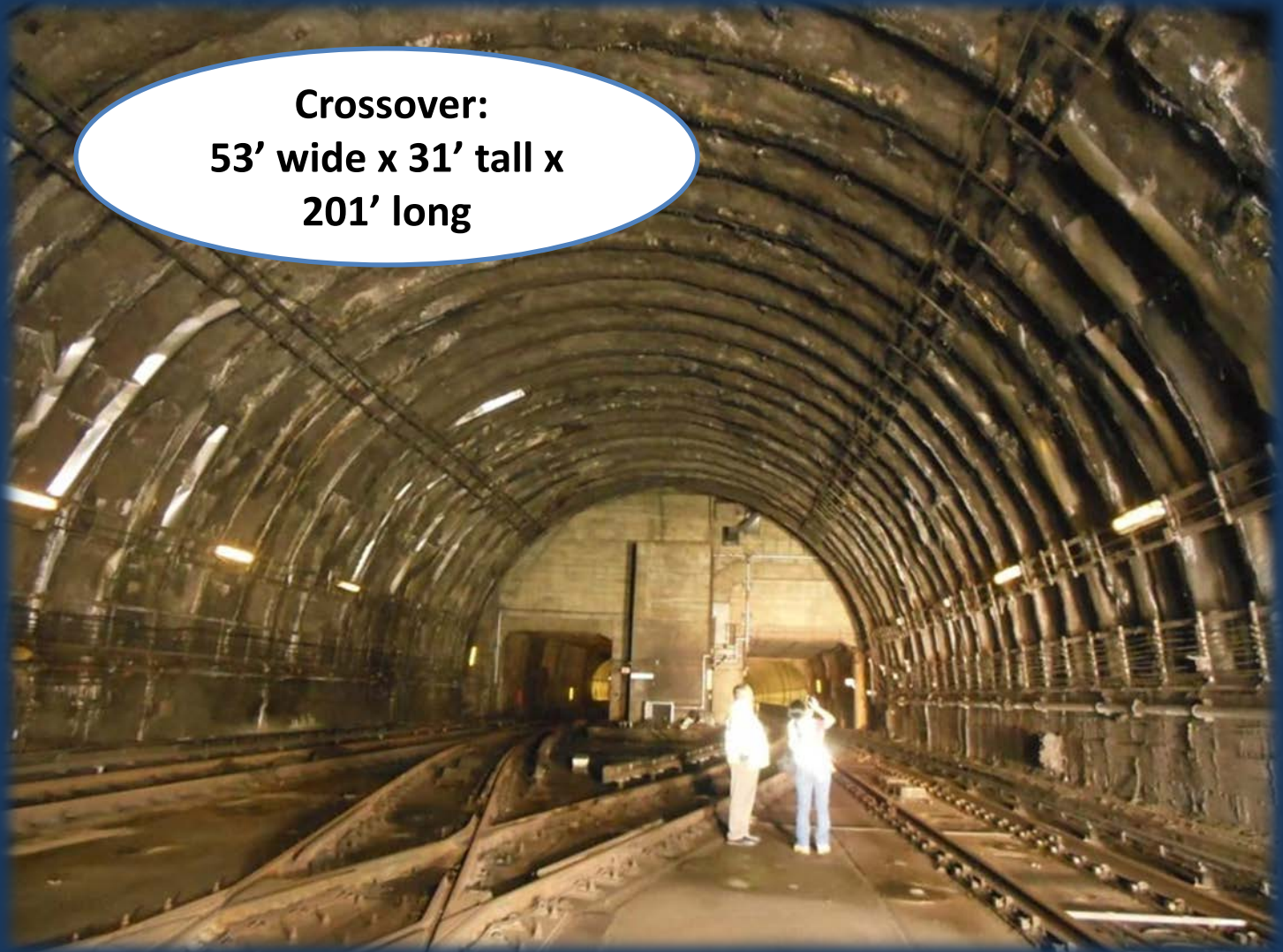




Medical Center Crossover

Existing Conditions and Water Intrusion Reasons

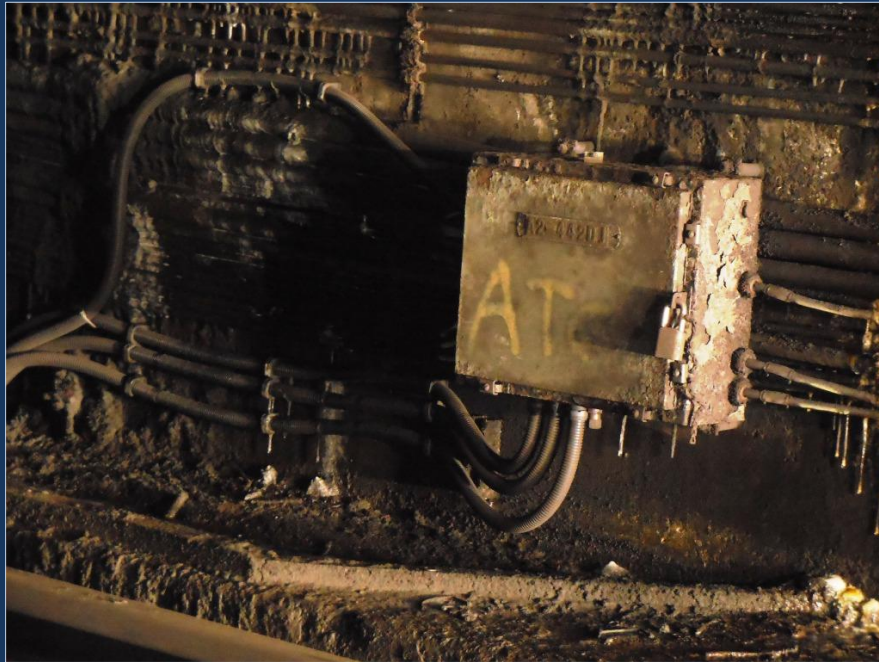
Crossover:
53' wide x 31' tall x
201' long





Medical Center Crossover

Existing Conditions and Water Intrusion Reasons



Rusted ATC Equipment

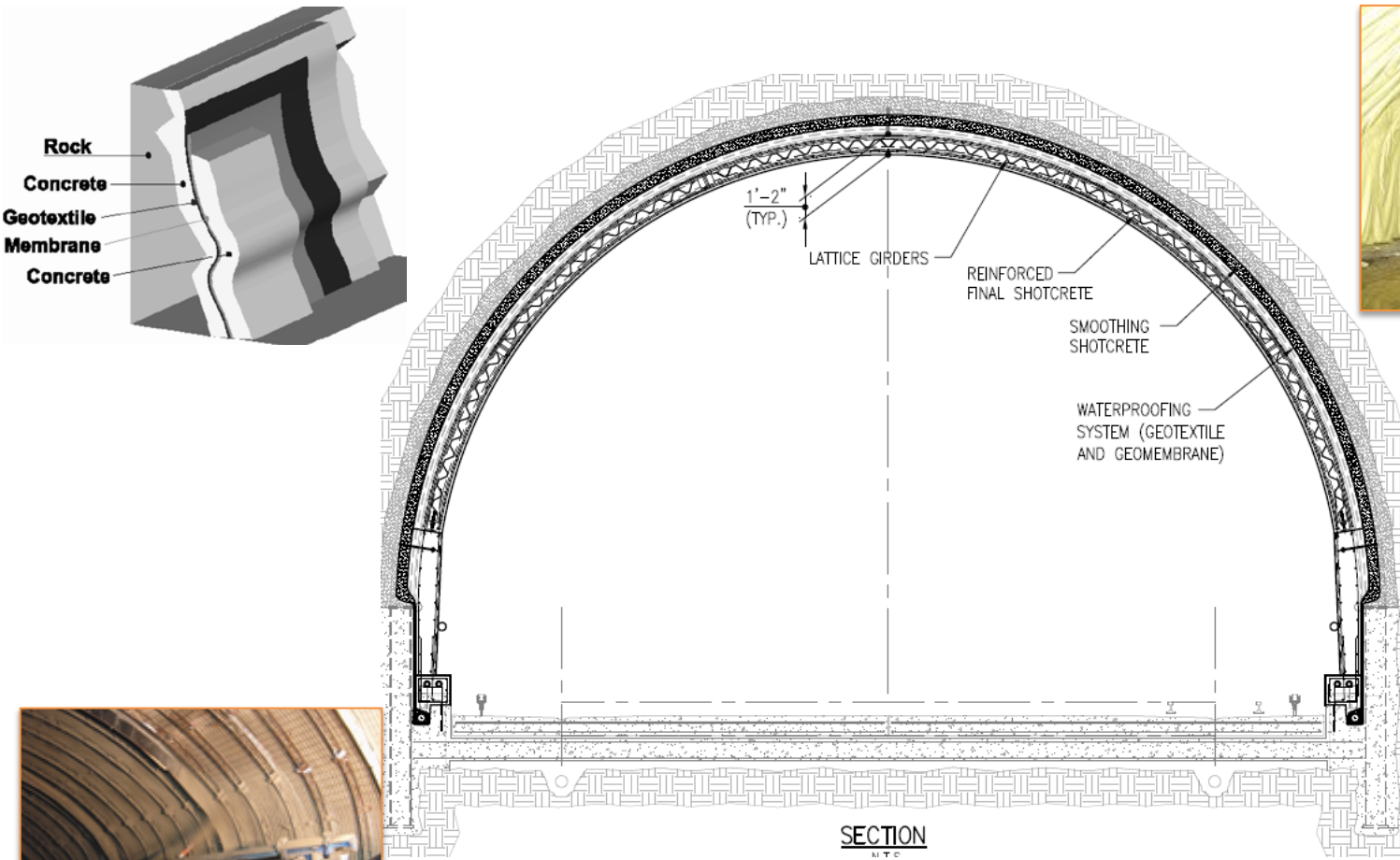


Corroded Running Rail



Crossover Waterproofing Options

Option 1 - Geomembrane System



Geomembrane System

Option 1

Option 1 - Geomembrane System

A grey rectangular button with rounded corners and a metallic ring on the left side, containing the word 'Issues' in black text.

Issues

- Intensive service disruptions
– 5 week 24x7 shutdown + weekends shutdowns
- Liner is not accessible after construction
- More weekend shutdowns needed for starter wall

A dark grey rectangular button with rounded corners, containing the text 'Total Project Cost' in white.

Total Project Cost

\$ 9M - Construction

\$ 10M - Bus Bridge

\$ 19M - Total Cost

A dark grey rectangular button with rounded corners, containing the text 'Risk Analysis' in white.

Risk Analysis

95% confidence
of completing work
within 5 weeks

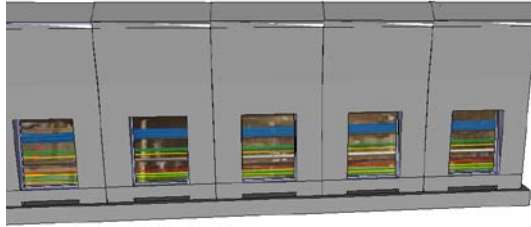
A red rectangular button with rounded corners and a metallic base, containing the text 'Option 1' in white.

Option 1

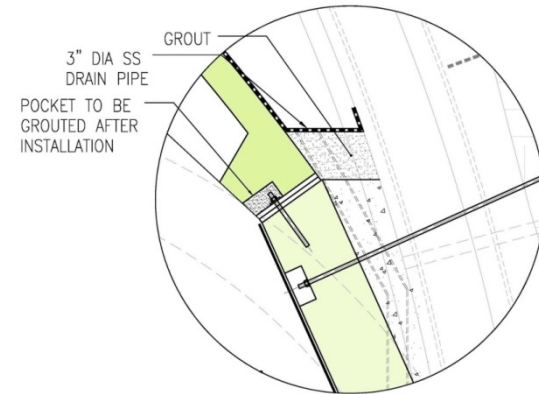
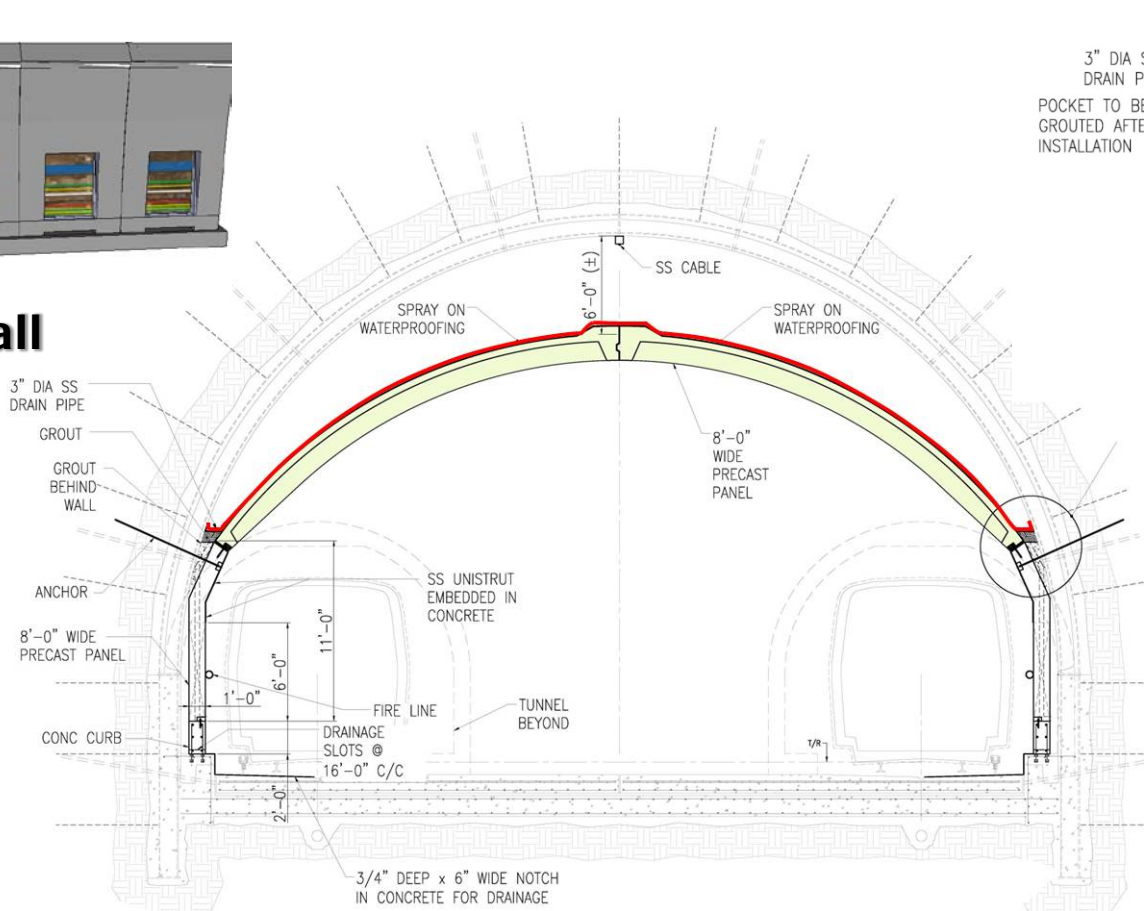


Crossover Waterproofing Options

Option 2 – Precast Concrete Arch



Starter Wall



Trough Detail

Precast Concrete Arch

Option 2



Option 2 – Precast Concrete Arch

Construction Steps

STEP 1 Reroute Standpipe and Radio Cable (Track 2)

STEP 2 Move up ATC and Power Cables (Track 2)

STEP 3 Transport and Erect Starter Wall (Track 2)

STEP 4 Move down ATC and Power Cables (Track 2)

STEP 5 Repeat the above Steps for Track 1

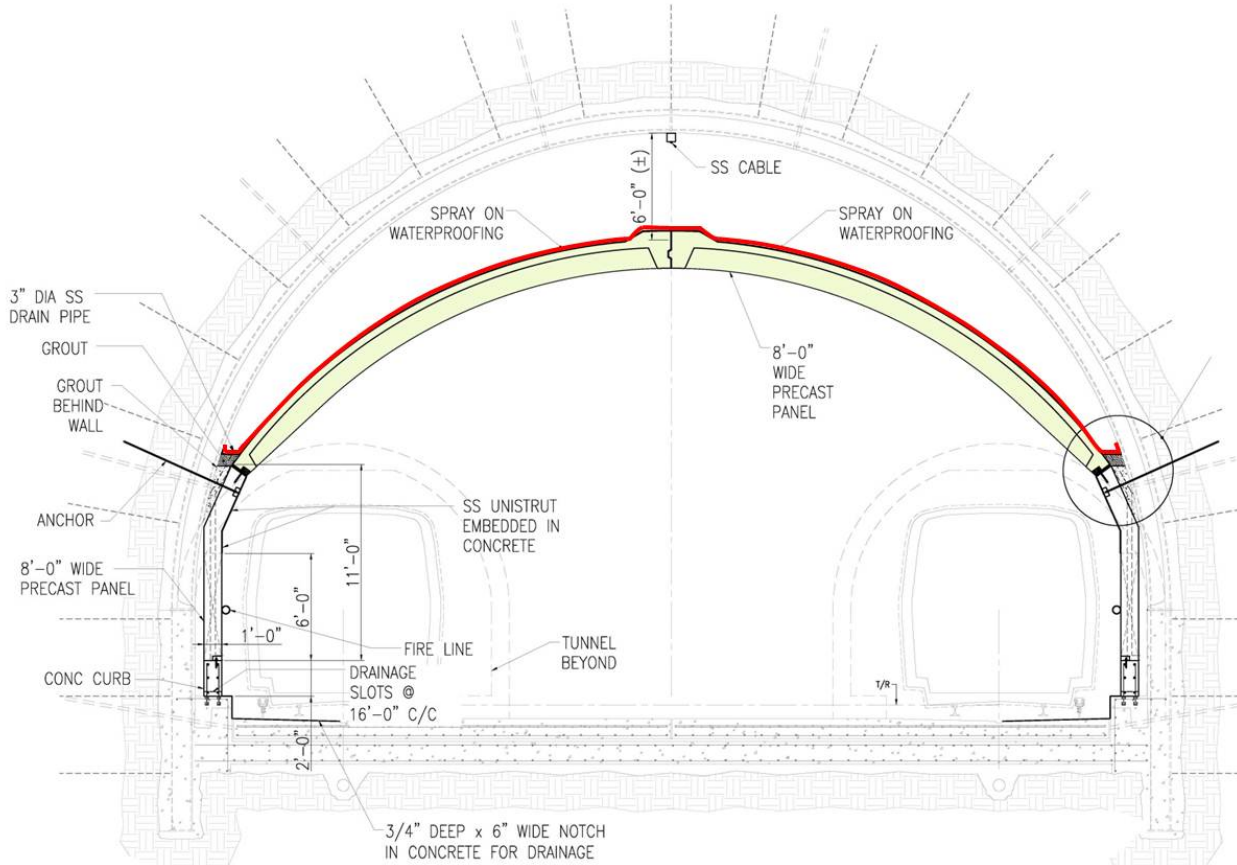


STEP 6 Install Drainage System -Top of Starter Wall

STEP 7 Install Precast Arch

STEP 8 Install Waterproofing on top of the Precast

Option 2 – Precast Concrete Arch



Total Project Cost

\$ 7.3M - Construction

\$ 4.9M - Bus Bridge

\$12.2M - Total Cost

**Starter Wall:
7 weekend
Shutdowns**

+

**Precast Arches:
7 consecutive
weekend
Shutdowns**



**Total
14 Weekend
Shutdowns**

Option 2 – Precast Concrete Arch

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Advantages

- Minimal number of pieces simplify erection, and
- Sections are simple and relatively lightweight
- Tunnel liner is accessible after construction
- Equipment can be used for the next crossover waterproofing
- Less service disruptions
- 14 Weekends shutdown provides the flexibility of the construction start date

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Option 2

Option Recommended and Selected

Geomembrane System



5 Week 24x7
Shutdown

\$\$\$ 19M

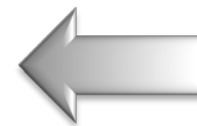


Precast Concrete Arch



14 Weekend
Shutdowns

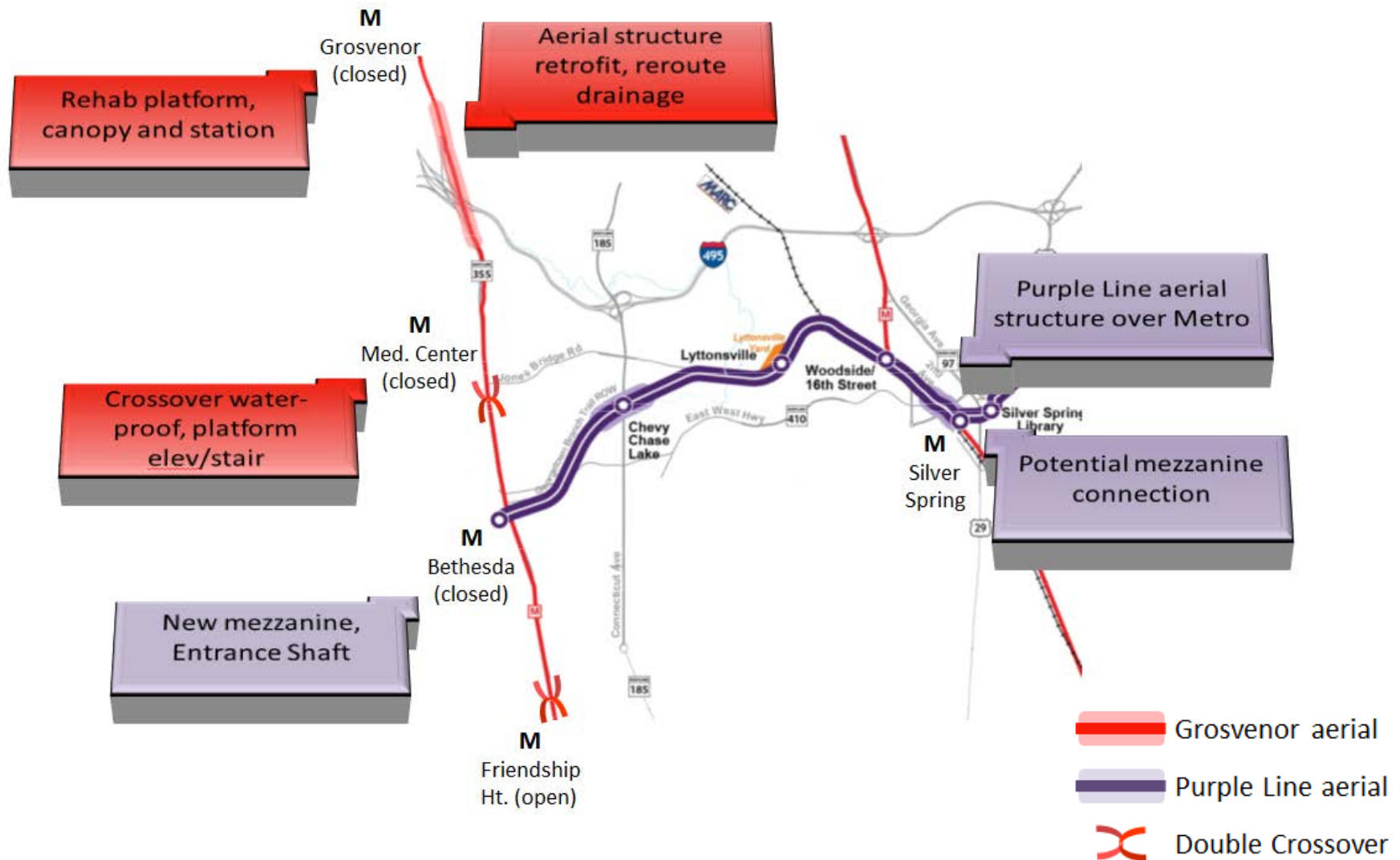
\$\$ 12.2M



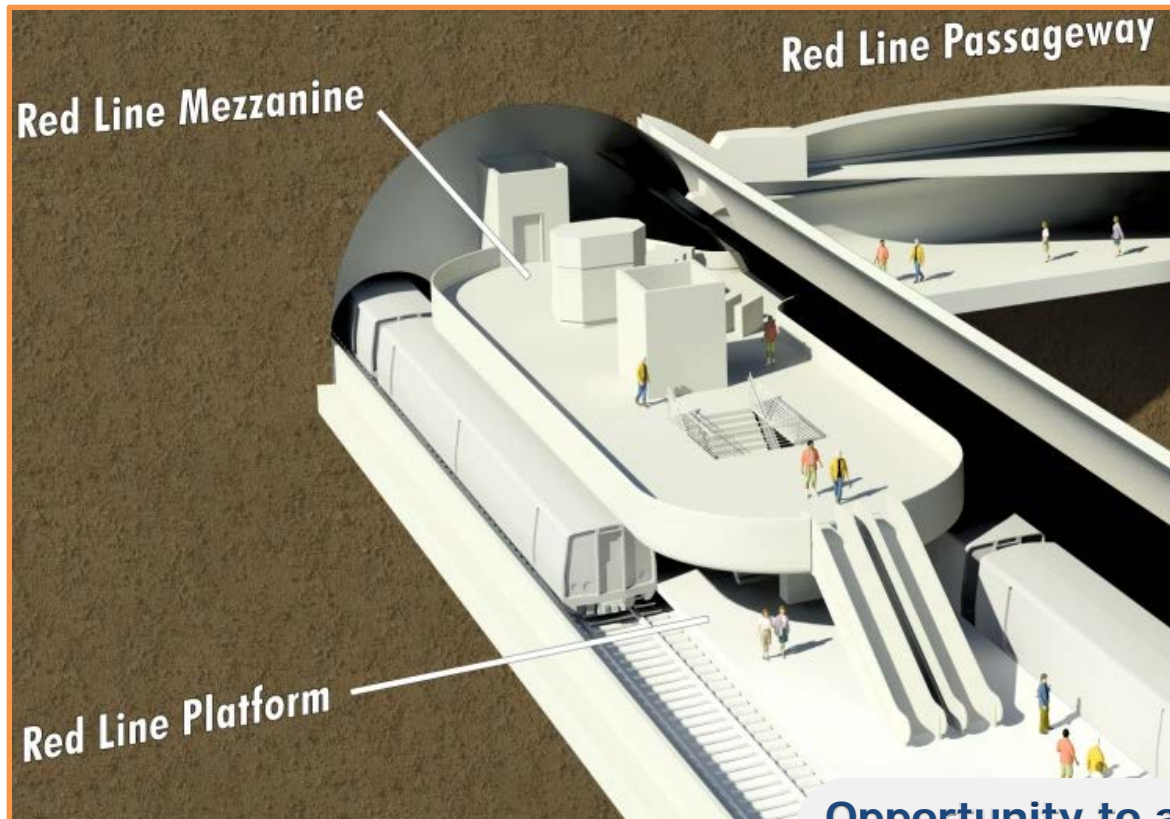
**Option
Selected**



Opportunity to Advance Additional Red Line Work



Purple Line – New Bethesda Mezzanine



Required work:

- Saw cut platform and invert slab
- Foundation for columns and elevators/escalator
- Mezzanine steel framing and concrete structures
- Elevators, escalator, communication systems, kiosk, fare collection

Opportunity to advance during the 14 weekend shutdowns:

- Some foundation work
- Mezzanine steel framing, mezzanine slab and parapet wall

Grosvenor Aerial Structure Retrofit



Required work:

- 21 Piers require anchor bolt repair
- Retrofit of girders at piers
- Grouting to transfer load
- Shutdown is needed to cure the grout

Opportunity to advance during the 14 weekend shutdowns:

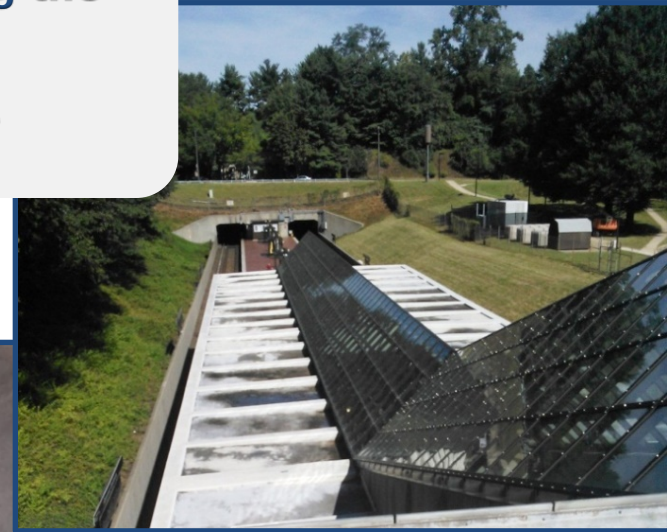
- Grouting of the piers



Grosvenor Platform and Canopy Rehab

Opportunity to advance during the 14 weekend shutdowns:

- Platform Structural Repairs
- Canopy Rehab





Tentative Schedule



Grosvenor
Station

Grosvenor
Aerial

Medical Center
Waterproofing

Bethesda New
Mezzanine

Final Design,
Procurement &
Preparation

14 Weekend
Shutdowns

Begin in
Summer/Fall 2016



Entrance Shaft
Bethesda

Aerial Structure and
Potential Connection
Silver Spring

MTA Request
on Weekend Shutdowns

Begin in Winter 2017
(Depends on MTA Contract)