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

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Issues

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

Total Project Cost

- $9M - Construction
- $10M - Bus Bridge
- $19M - Total Cost

Risk Analysis

95% confidence of completing work within 5 weeks
Crossover Waterproofing Options
Option 2 - Precast Concrete Arch

Starter Wall

Precast Concrete Arch

Trough Detail
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

Starter Wall:
- 7 weekend Shutdowns

Precast Arches:
- 7 consecutive weekend Shutdowns

Total Project Cost:
- $7.3M - Construction
- $4.9M - Bus Bridge
- $12.2M - Total Cost
Option 2 - Precast Concrete Arch

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
Option Recommended and Selected

**Geomembrane System**
- Option 1: 5 Week 24x7 Shutdown
- Cost: $19M

**Precast Concrete Arch**
- Option 2: 14 Weekend Shutdowns
- Cost: $12.2M

Option Selected
Opportunity to Advance Additional Red Line Work

- Rehab platform, canopy and station
- Crossover waterproof, platform elev/stair
- New mezzanine, Entrance Shaft
- Aerial structure retrofit, reroute drainage
- Potential mezzanine connection
- Grovenor aerial
- Purple Line aerial
- Double Crossover
Purple Line – New Bethesda Mezzanine

Opportunity to advance during the weekend shutdowns:
• Some foundation work
• Mezzanine steel framing, mezzanine slab and parapet wall

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
**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
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

**MTA Request on Weekend Shutdowns**

Begin in Winter 2017 (Depends on MTA Contract)

**Entrance Shaft Bethesda**

**Aerial Structure and Potential Connection Silver Spring**

**Purple Line**