

**EXHIBIT R**  
**DB Rehabilitation Plan**

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Exhibit R, DB Rehabilitation Plan, hereby incorporates the rehabilitation plan, Exhibit R to the Comprehensive Agreement (“CA Rehabilitation Plan”), subject to the following:

## **1 LIMITATION OF OPERATIONS**

The rehabilitation of the existing tunnels is to be performed during the time frames as shown in the Technical Requirements.

The DB Contractor requires the following number of full weekend and single lane closures to perform the Rehabilitation Work as described in the CA Rehabilitation Plan. The DB Contractor will pay liquidated damages for any additional closures requested to complete the DB Work, as well as for any late lane re-opening after any closures, all as described in Section 8.10(c) of the Design Build Contract.

<b>Existing Tunnel</b>	<b>Planned Full Weekend Closures</b>	<b>Planned Single Lane Closures</b>
Existing Midtown Tunnel	32	265
Downtown Tunnel Westbound	20	230
Downtown Tunnel Eastbound	37	240

Planned Full Weekend Closures are defined as full tunnel closures planned for weekends commencing at 8:00 pm Friday and ending at 5:00 am Monday scheduled in accordance with the Technical Requirements Section 3.8.

Planned Single Lane Closures are defined as single lane closures planned during weeknights, from Monday through Thursday, commencing at 8:00 pm and ending at 5:00 am scheduled in accordance with the Technical Requirements Section 3.8.

## **2 CLARIFICATIONS**

- 2.1** The Concessionaire is responsible for meeting the requirements of Section 1(d) of the CA Rehabilitation Plan.
- 2.2** The Concessionaire must clearly identify the specific location of the Rehabilitation Work in the field well in advance of DB Contractor performing the Rehabilitation Work.

## EXHIBIT R

### REHABILITATION PLAN

#### Section 1 General

(a) The Project includes rehabilitation of the following Existing Project Assets:

- (i) Existing Downtown Tunnel Westbound (“DTT WB”)
- (ii) Existing Downtown Tunnel Eastbound (“DTT EB”); and
- (iii) Existing Midtown Tunnel (“Existing MTT”).

(b) This Rehabilitation Plan defines the Concessionaire’s planned scope of Rehabilitation Work for the Existing Project Assets and forms the basis upon which the Concessionaire provided pricing for the Rehabilitation Work. The Concessionaire has provided this Rehabilitation Plan in accordance with the Agreement. The Concessionaire’s responsibility for Rehabilitation Work shall be strictly in accordance with and limited to the Work set forth in this Rehabilitation Plan. The Concessionaire makes no representation or warranty that this Rehabilitation Plan meets NFPA 502.

(c) The Concessionaire is responsible for final design of the Rehabilitation Work described within this Rehabilitation Plan and Attachment A.

(d) The Concessionaire will continue to maintain the existing ventilation system employed by the Department on the DTT WB and apply the same ventilation system for the DTT EB and the Existing MTT while the Rehabilitation Work is being executed.

#### Section 2 Reserved

#### Section 3 Rehabilitation Scope of Work

The scope of the Concessionaire’s Rehabilitation Work for the Existing Project Assets is briefly described below. This scope of work, exclusive of the electrical scope of work, is summarized in tabular form in Attachment A. Attachment A provides:

- An item number that corresponds to the scope of work descriptions presented in the narrative below.
- The Existing Project Asset that is associated with the corresponding rehab item.
- The location within the corresponding Existing Project Asset of the rehab item.
- A general description of the rehab item.
- A maximum quantity and unit of measure for the rehab item. Note that there are maximum quantities listed for certain rehab items.

- Indications for which rehab items require the Concessionaire to clearly identify the specific location of the Rehabilitation Work in the field well in advance of performing the Rehabilitation Work.

(a) **Item No. 1: Removal of Suspended Ceiling.** The existing suspended ceilings (ceilings that create a plenum) in the DTT EB and the Existing MTT immersed tube segments, including hangers and longitudinal beams, shall be removed and disposed of. Steel embeds are to be trimmed off at the concrete surface. Patching at any embed location in the tunnels is not included. Removal of any ceiling in the approach and cut and cover sections of the tunnels is not included.

(b) **Item No. 2: Ceiling Transition Structure.** Ceiling transition structures shall be designed, fabricated and installed in all three existing tunnels at each end of the upper air duct. The transition structures shall be constructed of light gauge metal framing and suitable fire rated material. The maximum quantity of the ceiling transition structures in each Existing Project Asset is specified in Attachment A.

(c) **Item No. 4: Ceiling Fire Protection.**

(i) Within the Existing Project Assets, and only where the existing tunnel ceilings were removed, structural fire protection shall be applied to the now-exposed concrete ceilings. The structural fire protection shall be applied along the ceiling above the top of tile.

(ii) The Concessionaire plans to install a structural fire protection system consisting of panelized fire protection board or direct applied fire protection boards, or equivalent that is capable of protecting the structure against the Rijkswaterstaat (RWS) time-temperature curve in accordance with NFPA 502 paragraph 7.3.2.

(d) **Item No. 5: Ventilation – Furnish and Install Jet Fans.**

(i) The ventilation system within each Existing Project Asset is to be upgraded. The preliminary design consists of jet fans installed in pairs along the ceiling of the tunnels in what was the upper air duct. The Concessionaire's preliminary design shows that the following number of jet fans is required in each tunnel:

- (A) DTT WB – 14 jet fans
- (B) DTT EB – 14 jet fans
- (C) Existing MTT – 16 jet fans

(ii) The Concessionaire shall perform the final design of the ventilation system. All jet fans shall preferably be of the same type and same manufacturer as those used in the New Midtown Tunnel. The Concessionaire shall also provide one spare fan for each “unique” fan on the Project.

(iii) The Concessionaire’s pricing for this item is based on supplying the number of fans as indicated above.

(e) **Item No. 6: Replace Missing Tiles.** Areas requiring replacement of loose and/or broken tiles shall be clearly identified in the field by the Concessionaire a minimum of three months prior to performing the applicable repair work. Loose and/or broken tiles as identified shall be replaced with new tiles supplied by others. Tile and grout color and finish are to match existing as closely as possible. The maximum quantity of tile replacement in each Existing Project Asset is specified in Attachment A.

(f) **Item No. 7: Repair Damaged Handrail.** Areas of handrail requiring repair shall be clearly identified in the field by the Concessionaire a minimum of three months prior to performing the applicable repair work. Broken or bent railings (or chains) are to be removed and replaced with new railings (or chains) matching the existing in type and finish as closely as possible. The quantity of repaired handrail is to be measured based on the linear foot of “pipe” (or chain) repaired and not by the overall linear foot of handrail. Loose or broken or bent posts are to be removed and replaced. The quantity of repaired handrail posts are to be measured by the number of posts repaired. The maximum repair quantity of handrail and handrail posts in each Existing Project Asset is specified in Attachment A.

(g) **Item No. 8: Emergency Exit Signage.** Reflective directional signs indicating the distance to emergency exit(s) are to be installed at distances of no more than 25 m (82 ft) along the length of the Existing Project Assets in accordance with NFPA 502 paragraph 7.15.1.2. The exit signs will preferably be located at the lights that function as the emergency lights since the sign panels do not have their own lighting source.

(h) **Item No. 9: Remove Existing Police Booths.** The existing police booths in the Existing Project Assets are to be removed and disposed of. Unfinished or scarred construction left behind is to be finished in a manner that matches the adjacent construction as closely as possible.

(i) **Item No. 10: Close Air Flues.** Air flues in the walls of the existing DTT WB and the Existing MTT are to be sealed by completely filling the flue with concrete or mortar. The maximum air flue quantity in each Existing Project Asset is specified in Attachment A.

(j) **Item No. 11: Clean and Repair Roadway Drainage Inlets.** Drain inlets requiring repair shall be clearly identified in the field by the Concessionaire a minimum of three months prior to performing the applicable repair work. The maximum quantity of drain inlets to be repaired in each Existing Project Asset is specified in Attachment A.

(k) **Item No. 12: Repair Pull Box Covers.** Pull box covers along the maintenance walkway of the DTT WB requiring repair shall be clearly identified in the field by the Concessionaire a minimum of three months prior to performing the applicable repair work. The maximum repair quantity in each Existing Project Asset is specified in Attachment A.

(l) **Item No. 13: Paint Steel Beams.** Corroded steel beams requiring surface preparation and painting repairs shall be clearly identified in the field by the Concessionaire a minimum of three months prior to performing the applicable repair work. Corroded steel beams

are to be cleaned and painted with suitable paint in two applications (primer plus final coat). The maximum quantity of corroded steel beams repaired in each Existing Project Asset is specified in Attachment A.

(m) **Item No. 14: Seal Cracks by Grouting.** Cracks required to be sealed shall be clearly identified in the field by the Concessionaire a minimum of three months prior to performing the repair work. Cracks are to be sealed in accordance with Good Industry Practice. The maximum quantity of cracks to be sealed in each Existing Project Asset is specified in Attachment A.

(n) **Item No. 15: Repair Concrete Delaminations and Spalls.** Delaminated and spalled concrete areas requiring repair shall be clearly identified in the field by the Concessionaire a minimum of three months prior to performing the repair work. Repair areas are to be prepared by first removing defective and/or cracked concrete. Corroded reinforcement is to be cleaned or replaced in kind. Bonding agent then is to be applied onto the concrete surface and the repair areas filled with shotcrete or concrete. The maximum quantity of delaminated and spalled concrete area to be repaired in each Existing Project Asset is specified in Attachment A.

(o) **Item No. 16: Electrical.**

#### EXISTING MIDTOWN TUNNEL & VENT BUILDING ELECTRICAL REHABILITATION

##### UPPER AIR DUCT

- Existing Conduit and Cable
  - The two 4” FRE (bullet resistant RTRC) conduits, conduits #1 and #2, belong to the Department. Each conduit contains four 1” innerducts. One of the conduits contains two 96 fiber cables. Both conduits will be removed from the Upper Air Duct with only one conduit being replaced in the Lower Air Duct. That conduit will be a 4” FRE (using standard wall phenolic) which will contain four 1” innerducts. The two 96 fiber cables will be relocated to the replaced conduit in the Lower Air Duct.
  - The two 6” FRE (bullet resistant RTRC) conduits, conduits #3 and #4, belong to ATT. Removal and replacement of these conduits, cabling and wiring is not included. ATT is responsible for relocating these conduits, cabling and wiring to the Lower Air Duct.
  - Conduits #7 & #8, which are 2.5” and 1” metal conduits respectively, are for the current CCTV system. These conduits will need to be temporarily suspended lower to allow for fire protection panel installation. These conduits will later be removed once the new CCTV system is installed.
  - Metal conduits #9, #10 & #11 are for the air sampling system that is being replaced. These conduits will be removed.
- Existing Lighting

- The existing fixtures and outlets will be removed.
- The existing exposed conduit and wire #5 & #6 will be removed.

#### LOWER AIR DUCT

- Existing Conduit and Cable
  - Conduit #15 is actually a 4” PVC multi-cell conduit that belongs to Verizon (conduit was previously described as a metal conduit). There are also several other soft PVC sleeves that run into the air duct that also belong to Verizon. Removal and replacement of these conduits, cabling and wiring is not included. The AHJ will need to determine if the PVC conduit can remain in the to-be-sealed-off air duct. If the PVC conduit cannot remain in the Lower Air Duct, then Verizon would be responsible for the replacement of the conduit and wiring.
  - Conduit #23 belongs to Cox Cable and is 2.5” PVC. Removal and replacement of this conduit, cabling and wiring is not included. The AHJ will need to determine if the PVC conduit can remain in the to-be-sealed-off air duct. If the PVC conduit cannot remain in the Lower Air Duct, then Cox Cable would be responsible for the replacement of the conduit and wiring.
  - Conduits #26 and #27 are 6” FRE (bullet resistant RTRC) that belong to ATT. Removal and replacement of these conduits, cabling and wiring are not included. These conduits should be able to remain as is.
  - Two PVC jacketed Belden control cables were found running alongside the conduits. Removal and replacement of these cables are not included. The AHJ will need to determine if the PVC cables can remain in the to-be-sealed-off air duct.
  - There are various antennae cables made of THHN wire (PVC jacket). Removal and replacement of these cables is not included. The AHJ will need to determine if the PVC cables can remain in the to-be-sealed-off air duct.
- Existing Lighting and Power
  - The existing lighting and outlet conduits will be re-supported using stainless steel anchors and stainless steel clips.
  - The existing light fixtures and wire will be replaced.
  - The existing maintenance receptacles and wire will be replaced.

#### ROADWAY

- Existing Conduit and Cable
  - There are two exposed 0.75” PVC conduits for communications that run the length of the tunnel on the wall above the tunnel lighting. These conduits will be replaced with an approved raceway and new wire.

## VENTILATION

- Jet Fans
  - Install raceway and cabling for jet fans.
  - Each jet fan will be provided with a dedicated 480 volt 3 phase feed with the voltage drop limited to 5% or less.
  - Each jet fan will have a NEMA 4X disconnect switch.
  - Motor winding temperature, vibration levels, and disconnect switch position will be monitored.
  - Fans will be fed from the Norfolk and Portsmouth vent buildings.
- CO detection
  - New equipment will be installed that will match the New Midtown Tunnel.
  - Four transmitters and receivers will be installed 10 meters apart with an operator interface in the vent building.
  - These operator interface panels will be connected to the final SCADA fiber backbone.
  - The existing CO equipment will be removed.

## FIRE ALARM SYSTEM

- Lighting at FAS stations
  - A single 100 watt incandescent “Jelly Jar” wall mounted fixture will be provided at each combined FAS station/Telephone location.
  - These fixtures will have guards and impact resistant lens.
  - The circuits to feed these fixtures will be run in exposed ¾” rigid metal.
  - The feeds will come from an existing emergency UPS source in the vent buildings.



## ELECTRICAL

- Test 11kV feeder conductors
  - An on line partial discharge test will be performed on 11kV tie line cables.
- Tests of 11kV and 480V switchgear
  - All substations, transformers, switchboards and MCCs modified/provided shall be tested per NETA standards. Equipment will not be tested prior to commencing modifications.
- Load study
  - A full load study will have to be performed to determine what modifications are actually required. This will have to be performed by the engineer of record. The only modifications to the load centers included are described herein.
- Midtown Norfolk switchgear
  - By not running the existing supply and exhaust fans each 1500KVA transformer will be able to feed 4 – 75HP jet fans.
  - Drawout circuit breakers will be provided in each side of the double ended substation to feed these jet fan motor control centers.
  - The spare locations listed as “E1-5” and “E2-5” will be utilized.
  - All of the existing 11kV and 480V switchgear; transformers and motor control centers will remain as is.
  - No other electrical distribution system revisions to the 480V switchgear, MCC’s, Transfer Switches, Distribution Panels, Transformers or 11kV Switchgear are included.
- Midtown Portsmouth switchgear
  - At Portsmouth there is a 500KVA double ended substation with a 480V secondary of 800 Amps.
  - In order to handle the additional jet fan load, two new 2000KVA transformers and a double ended 2500Amp 480V secondary switchboard will be provided.
  - The existing 11kV switchgear will remain and be used to feed the new 2000KVA transformers.

- A temporary 2000KVA transformer and 2500Amp switchboard located outside the building will be used. This temporary equipment will replace one half of the existing substation while it is being replaced.
- New MCCs will be provided for the existing loads and new jet fans.
- After testing and energizing the first half of the double ended substation the process will be repeated for Section 2.
- During the equipment replacement there will be no secondary tie available.
- Soft starters for fans
  - In lieu of soft starters, NEMA Size 4 full voltage reversing starters will be provided.
  - Each vent building will have 2 motor control centers each with 4 starters to allow for the dual source coverage like the new tunnel. Each vent building will feed the 8 fans on the respective vent's side of the tunnel.
- Remove existing fan motor starters etc.
  - Fan and damper motors will be disconnected.
  - Fan controllers and starters will be left in place.
  - Exposed conduit will be removed.

#### OTHER

- Repair 11kV volt readout in control room
  - 11kV to 120V potential transformers will be replaced on the incoming utility circuit where the 11KV switchgear is scheduled to remain.
  - The output of these transformers will be converted to a 4 – 20 MA analog signal and sent to the closest R10 cabinet.
  - This signal will be available at the Norfolk OCC.

#### EXISTING DOWNTOWN WESTBOUND TUNNEL & VENT BUILDING ELECTRICAL REHABILITATION

##### UPPER AIR DUCT

- Existing Conduit and Cable

- Metal conduits #1, #3, #8 & #9 will be re-supported lower to allow for installation of the fire protection panels.

#### LOWER AIR DUCT

- Existing Conduit and Cable
  - There are various antennae cables (#11 and #17) made of THHN wire (PVC jacket). Removal and replacement of these cables is not included. The AHJ will need to determine if the PVC cables can remain in the to-be-sealed-off air duct.
  - There are two fiber optic lines #12 & #13 that belong to Verizon. The jacket may be PVC. Removal and replacement of these lines is not included. The AHJ will need to determine if the PVC can remain in the to-be-sealed-off air duct. If the lines cannot remain in the Lower Air Duct, then Verizon would be responsible for their replacement.
- Existing Lighting and Power
  - The existing lighting and outlet conduits (#15, #16 & #18) will be re-supported using stainless steel anchors and stainless steel clips.
  - The light fixtures and wire will be replaced in the lower air duct.
  - The existing maintenance receptacles and wire will be replaced.

#### ROADWAY

- Existing Conduit and Cable
  - There are two exposed 0.75” PVC conduits for communications that run the length of the tunnel on the wall above the tunnel lighting. These conduits will be replaced with an approved raceway and new wire.

#### VENTILATION

- Jet Fans
  - Install raceway and cabling for jet fans.
  - Each jet fan will be provided with a dedicated 480 volt 3 phase feed with the voltage drop limited to 5% or less.
  - Each jet fan will have a NEMA 4X disconnect switch.
  - Motor winding temperature, vibration levels, and disconnect switch position will be monitored.

- Fans will be fed from the Norfolk and Portsmouth vent buildings.
- CO detection
  - New equipment will be installed that will match the New MTT.
  - Four transmitters and receivers will be installed 10 meters apart with an operator interface in the vent building.
  - These operator interface panels will be connected to the final SCADA fiber backbone.
  - The existing CO equipment will be removed.

#### FIRE ALARM SYSTEM

- Lighting at FAS stations
  - A single 100 watt incandescent “Jelly Jar” wall mounted fixture will be provided at each combined FAS station/Telephone location.
  - These fixtures will have guards and impact resistant lens.
  - The circuits to feed these fixtures will be run in exposed ¾” rigid metal.
  - The feeds will come from an existing emergency UPS source in the vent buildings.

#### ELECTRICAL

- Test 11kV feeder conductors
  - An on line partial discharge test will be performed on 11kV tie line cables.
- Tests of 11kV and 480V switchgear
  - All substations, transformers, switchboards and MCCs modified/provided shall be tested per NETA standards. Equipment will not be tested prior to commencing modifications.
- Load study
  - A full load study will have to be performed to determine what modifications are actually required. This will have to be performed by the engineer of record. The only modifications to the load centers included are described herein.
- Downtown Norfolk/Berkley switchgear

*EXECUTION VERSION – DECEMBER 5, 2011*

- There are currently 4 – 750KVA transformers with total connected load from 560KVA to 765KVA.
- Fan cooling will be added to each transformer thereby increasing their rating to 1000KVA.
- Four drawout breakers will be provided to replace 4 existing spare breakers.
- These new breakers will feed 4 jet fan motor control centers.
- With the existing exhaust fan load replaced by the jet fan load, the transformers will have a total connected load of between 600KVA to 804KVA.
- No other electrical distribution system revisions to the 480V switchgear, MCC's, Transfer Switches, Distribution Panels, Transformers, 11kV Switchgear, Distribution Control Panel or Berkley Bridge Metering are included.
- Downtown Portsmouth switchgear
  - Fan cooling will be added to each transformer thereby increasing their rating to 1330KVA. Therefore, by also not running the four 250HP exhaust fans, none of the existing switchgear will have to be replaced.
  - Four existing drawout circuit breakers will be replaced with drawout breakers to feed four jet fan motor control centers.
  - Each side of the double ended unit substation will feed jet fans in the eastbound tunnel and jet fans in the westbound tunnel.
  - This work will be accomplished during weekend tunnel closures because during the switchgear modifications there will be no exhaust fans or jet fans available.
  - Tunnel ventilation during this period will be provided by ERC.
  - No other electrical distribution system revisions to the 480V switchgear, MCC's, Transfer Switches, Distribution Panels, Transformers or 11kV Switchgear are included.
- Soft starters for fans
  - In lieu of soft starters, NEMA Size 4 full voltage reversing starters will be provided.

- At the downtown Portsmouth Vent Building there will be 4 motor control centers each with 4 starters. Each MCC will feed fans in the west end of both tunnels.
- At the downtown Norfolk/Berkley Vent Building there will also be 4 motor control centers to duplicate the pattern of the Portsmouth location, only covering the east end of both tunnels.
- Remove existing fan motor starters etc.
  - Fan and damper motors will be disconnected.
  - Fan controllers and starters will be left in place.
  - Exposed conduit will be removed

#### OTHER

- 12kV Cable Repair 12KV at pump room
  - Cable will be traced and identified.
  - Cable will be tested and circuit breakers locked out and grounded.
  - A new NEMA 4X junction box will be provided and repair splices made to the existing cable.
  - Conduit entering the pump room at the cable tray will be cleaned and sealed with a watertight sealant similar to 3M product 1000NS.
  - The 11kV tie circuit will not be available during this time.

#### EXISTING DOWNTOWN EASTBOUND TUNNEL & VENT BUILDING ELECTRICAL REHABILITATION

##### UPPER AIR DUCT

- Existing Conduit and Cable
  - 2” white PVC conduit #1 is a water drain from a ceiling leak trough. Concessionaire to replace with approved non-metallic drain after fire protection panels are installed.
  - 2” white PVC conduit #4 belongs to Cox Cable. Removal and replacement of this conduit, cabling and wiring is not included. Cox Cable is responsible for relocating these conduits, cabling and wiring.
  - Cables #5 and #6 are PVC jacketed Belden control cables tie-wrapped to the Cox Cable PVC conduit #4. Concessionaire has included removing

and replacing these cables into an approved non-metallic raceway along the wall.

- 1” metal conduits #11 & #12 will remain since they should not interfere with the new jet fans.
- The two 4” FRE (bullet resistant RTRC) conduits, conduits #13 and #14, belong to the Department. Each conduit contains four 1” innerducts. One of the conduits contains two 96 fiber cables. Both conduits will be removed from the Upper Air Duct with only one conduit being replaced. Since there is no lower air duct, the conduit will be located in the Lower Air Duct of the Westbound DTT. That conduit will be a 4” FRE (using standard wall phenolic) which will contain four 1” innerducts. The two 96 fiber cables will be relocated to the replaced conduit in the Lower Air Duct.
- 3” metal conduit #15 belongs to the Department and contains 2 coax cables. It appears that it will interfere with the new jet fans. Concessionaire will relocate it on the ceiling away from jet fan interference and in a manner that allows for the fire protection panel installation.
- 1 ½” metal conduit #16 will not interfere with the jet fans. However, Concessionaire shall suspend this conduit lower to allow for the fire protection panel installation.
- Conduits #7, #8, #9 & #10 are 0.5” PVC lines for the air sampling system that is being replaced. Concessionaire will remove these conduits.
- Existing Lighting
  - The existing fixtures and outlets will be removed.
  - The existing exposed conduit and wire will be removed

## ROADWAY

- Existing Conduit and Cable
  - There are two exposed 0.75” PVC conduits for communications that run the length of the tunnel on the wall above the tunnel lighting. These conduits will be replaced with an approved non-metallic raceway and new wire.
  - There are exposed ¾” PVC conduits for communications that run on the high curb that are for communications. They will be replaced with an approved non-metallic raceways and new wire

## VENTILATION

- Jet Fans
  - Install raceway and cabling for jet fans.
  - Each jet fan will be provided with a dedicated 480 volt 3 phase feed with the voltage drop limited to 5% or less.
  - Each jet fan will have a NEMA 4X disconnect switch.
  - Motor winding temperature, vibration levels and disconnect switch position will be monitored.
  - Fans will be fed from the Norfolk and Portsmouth vent buildings.
- CO detection
  - New equipment will be installed that will match the New Midtown Tunnel.
  - Four transmitters and receivers will be installed 10 meters apart with an operator interface in the vent building.
  - These operator interface panels will be connected to the final SCADA fiber backbone.
  - The existing CO equipment will be removed.

## FIRE ALARM SYSTEM

- Lighting at FAS stations
  - A single 100 watt incandescent “Jelly Jar” wall mounted fixture will be provided at each combined FAS station/Telephone location.
  - These fixtures will have guards and impact resistant lens.
  - The circuits to feed these fixtures will be run in exposed ¾” rigid metal.
  - The feeds will come from an existing emergency UPS source in the vent buildings.

## ELECTRICAL

- The electrical distribution work for the DTT EB is covered within the DTT WB scope narrative.

## BERKLEY BUILDING RENOVATIONS



- The scope of the electrical renovations to the Berkley building is based on section 4.C of the Downtown Existing Buildings Conditions Assessment report and is as follows:
  - 4. C.1.d .1 – all the lighting fixtures in the building will be replaced; the branch wiring will be reused.
  - 4. C.1.d.2 – the panelboards and transformers in the building will be replaced; the feeder wiring will be reused.
  - 4. C.1.d.3&4 – the fire alarm system will be completely replaced, including conduit & wire.
  - 4. C.1.e & f – for Mechanical & Plumbing, included is disconnecting the feed to 33 existing pieces of equipment and reconnecting to something furnished & installed by others in the same location. All branch wiring will be reused.

GENERAL NOTE

The electrical scope of work for the rehabilitation of the three existing tunnels is based on the assumption that the new jet fans and the existing fans will not be required to be run simultaneously. The switchgear renovation plans allow for testing one jet fan at a time while the existing fans are running. Each jet fan will then be left turned off until all jet fans are ready to be cut over at the same time.

Attachment A

REHAB ITEM #	TUNNEL	LOCATION	DESCRIPTION	QUANTITY	UNIT	CONCESSIONAIRE TO FIELD IDENTIFY
2	DTT WB	Susp Ceiling	Ceiling Transition Structure	500	SF	
4	DTT WB	Upper Air Duct	Ceiling Fire Protection	1	LS	
5	DTT WB	Upper Air Duct	Ventilation - Furnish & Install Jet Fans	14	EA	
14	DTT WB	Upper Air Duct	Seal cracks by grouting	500	LF	Yes
6	DTT WB	Roadway	Replace missing tiles	100	SF	Yes
7	DTT WB	Roadway	Re-fix railposts	50	EA	Yes
7	DTT WB	Roadway	Repair damaged rails and chains	100	LF	Yes
8	DTT WB	Roadway	Emergency Exit Signage	1	LS	
9	DTT WB	Roadway	Remove existing police booths	2	EA	
10	DTT WB	Roadway	Close air flues	600	EA	
11	DTT WB	Roadway	Clean and repair roadway drainage inlets	5	EA	Yes
12	DTT WB	Roadway	Repair pull box covers	18	EA	Yes
15	DTT WB	Roadway	Repair Concrete Delaminations and Spalls	300	CF	Yes
13	DTT WB	Lower Air Duct	Paint steel beams	60	LF	Yes
14	DTT WB	Lower Air Duct	Seal cracks by grouting	400	LF	Yes

EXECUTION VERSION – DECEMBER 5, 2011

REHAB ITEM #	TUNNEL	LOCATION	DESCRIPTION	QUANTITY	UNIT	CONCESSIONAIRE TO FIELD IDENTIFY
15	DTT WB	Lower Air Duct	Repair Concrete Delaminations and Spalls	200	CF	Yes
15	DTT WB	Lower Air Duct	Repair Concrete Delaminations and Spalls	50	CF	Yes
15	DTT WB	Norfolk Pump room	Repair Concrete Delaminations and Spalls	10	CF	Yes
1	DTT EB	Susp Ceiling	Removal of Suspended Ceiling	1	LS	
2	DTT EB	Susp Ceiling	Ceiling Transition Structure	500	SF	
4	DTT EB	Upper Air Duct	Ceiling Fire Protection	1	LS	
5	DTT EB	Upper Air Duct	Ventilation - Furnish & Install Jet Fans	14	EA	
14	DTT EB	Upper Air Duct	Seal cracks by grouting	300	LF	Yes
6	DTT EB	Roadway	Replace missing tiles	20	SF	Yes
7	DTT EB	Roadway	Attend protruding bolts	4	EA	Yes
8	DTT EB	Roadway	Emergency Exit Signage	1	LS	
9	DTT EB	Roadway	Remove existing police booths	2	EA	
11	DTT EB	Roadway	Clean and repair roadway drainage inlets	2	EA	Yes
14	DTT EB	Roadway	Seal cracks by grouting	100	LF	Yes
15	DTT EB	Roadway	Repair Concrete Delaminations and Spalls	50	CF	Yes

EXECUTION VERSION – DECEMBER 5, 2011

REHAB ITEM #	TUNNEL	LOCATION	DESCRIPTION	QUANTITY	UNIT	CONCESSIONAIRE TO FIELD IDENTIFY
1	Existing MTT	Susp Ceiling	Removal of Suspended Ceiling	1	LS	
2	Existing MTT	Susp Ceiling	Ceiling Transition Structure	500	SF	
4	Existing MTT	Upper Air Duct	Ceiling Fire Protection	1	LS	
5	Existing MTT	Upper Air Duct	Ventilation - Furnish & Install Jet Fans	16	EA	
14	Existing MTT	Upper Air Duct	Seal cracks by grouting	1,000	LF	Yes
6	Existing MTT	Roadway	Replace missing tiles	1,000	SF	Yes
7	Existing MTT	Roadway	Re-fix railposts	6	EA	Yes
7	Existing MTT	Roadway	Repair damaged rails	100	LF	Yes
8	Existing MTT	Roadway	Emergency Exit Signage	1	LS	
9	Existing MTT	Roadway	Remove existing police booths	2	EA	
10	Existing MTT	Roadway	Close air flues	800	EA	
11	Existing MTT	Roadway	Clean and repair roadway drainage inlets	5	EA	Yes
15	Existing MTT	Roadway	Repair Concrete Delaminations and Spalls	200	CF	Yes
13	Existing MTT	Lower Air Duct	Paint steel beams	80	LF	Yes
14	Existing MTT	Lower Air Duct	Seal cracks by grouting	50	LF	Yes
15	Existing MTT	Lower Air Duct	Repair Concrete	200	CF	Yes

EXECUTION VERSION – DECEMBER 5, 2011

REHAB ITEM #	TUNNEL	LOCATION	DESCRIPTION	QUANTITY	UNIT	CONCESSIONAIRE TO FIELD IDENTIFY
15	Existing MTT	Lower Air Duct	Delaminations and Spalls Repair Concrete Delaminations and Spalls	50	CF	Yes