TRAFFIC VOLUMES AROUND SITE

Future Traffic

Figure 3.7.9 Future Traffic Volumes

Legend
AM/PM Peak Hour Traffic Volumes
## North Mall

<table>
<thead>
<tr>
<th>Loading Characteristics</th>
<th>Proposed NM AHC</th>
<th>NMAH</th>
<th>NMNH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hours of Operation (Weekday &amp; Weekend)</strong></td>
<td>5:30 AM – 4:00 PM</td>
<td>5:30 AM – 4:00 PM</td>
<td>6:00 AM – 7:00 PM</td>
</tr>
<tr>
<td><strong>Daily (Weekday) Truck Volume</strong></td>
<td>15 trucks</td>
<td>16 trucks</td>
<td>20 - 30 trucks</td>
</tr>
<tr>
<td></td>
<td>Special Events: 5 additional</td>
<td>Special Events: 5 – 10 additional</td>
<td>Special Events: 3 – 4 additional</td>
</tr>
<tr>
<td><strong>Tractor Trailers (73')</strong></td>
<td>5 per month</td>
<td>3 per week</td>
<td>1-2 per day</td>
</tr>
<tr>
<td><strong>Distribution (Weekday)</strong></td>
<td>To be scheduled</td>
<td>80% 5:30 – 10:00 AM</td>
<td>75% AM 25% PM</td>
</tr>
<tr>
<td></td>
<td>20% 10:00 AM – 4:00 PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Service (Trash Collection)</strong></td>
<td>3-4 times weekly</td>
<td>Regular trash – 3 times a week</td>
<td>3 times a week</td>
</tr>
<tr>
<td>Recyclables – once a week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Saturday Truck Volume</strong></td>
<td>8 trucks</td>
<td>10 trucks</td>
<td>Occasional scheduled thru security</td>
</tr>
<tr>
<td><strong>Sunday Truck Volume</strong></td>
<td>5 trucks</td>
<td>6 trucks</td>
<td>Occasional scheduled thru security</td>
</tr>
<tr>
<td><strong>Max. No. of Trucks in Loading Area</strong></td>
<td>3 trucks</td>
<td>2 trucks</td>
<td>3 trucks</td>
</tr>
<tr>
<td><strong>Service Drive, Curb Cut</strong></td>
<td>Entrance/Exit on 14th St.: 24' wide with mountable curb</td>
<td>Entrance at 12th St.: 18' 6&quot; wide Exit at 14th St.: 26' wide</td>
<td>Entrance/Exit 2 at Constitution: 20' wide each</td>
</tr>
<tr>
<td><strong>Restrictions</strong></td>
<td>Deliveries to be scheduled at off peak hours. Large truck deliveries only between 11PM and 5 AM Exit traffic restricted to right turn only.</td>
<td>13'-6&quot; Clearance. Taller trucks must unload on 14th Street exit ramp.</td>
<td>One loading dock can only accommodate one vehicle at a time, due to load restrictions.</td>
</tr>
<tr>
<td><strong>Dock Management</strong></td>
<td>Truck arrivals are scheduled jointly with Facilities Management and Security. Deliveries are screened first by security staff on the loading platform, and then distributed to museum staff.</td>
<td></td>
<td>Unlike most of the other museums on the Mall NMNH has an additional facilities office that works directly for the museum.</td>
</tr>
</tbody>
</table>

## South Mall

<table>
<thead>
<tr>
<th>Loading Characteristics</th>
<th>NMAI</th>
<th>NASM</th>
<th>Quad.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hours of Operation (Weekday &amp; Weekend)</strong></td>
<td>6:00 AM – 6:00 PM</td>
<td>6:00 AM – 4:30 PM</td>
<td>5:30 AM – 4:00 PM Closed weekends except special events.</td>
</tr>
<tr>
<td><strong>Daily (Weekday) Truck Volume</strong></td>
<td>20 – 25 trucks</td>
<td>4-5 trucks and numerous vans</td>
<td>16 trucks per day</td>
</tr>
<tr>
<td><strong>Tractor Trailers</strong></td>
<td>1 every 3 months</td>
<td>2 per day</td>
<td>1 per day</td>
</tr>
<tr>
<td><strong>Distribution (Weekday)</strong></td>
<td>75% 6:00 – 10:00 AM</td>
<td>80% AM, scheduled deliveries</td>
<td>50% AM</td>
</tr>
<tr>
<td></td>
<td>25% 10:00 AM – 6:00 PM</td>
<td></td>
<td>50% PM</td>
</tr>
<tr>
<td><strong>Service (Trash Collection)</strong></td>
<td>Regular trash – once a week Recyclables – as called for by facilities</td>
<td>SI Trash-twice a week McDonalds- twice a week</td>
<td>Once a week</td>
</tr>
<tr>
<td><strong>Saturday Truck Volume</strong></td>
<td>6 trucks</td>
<td>4- 5 McDonalds deliveries</td>
<td>None, except special events</td>
</tr>
<tr>
<td><strong>Sunday Truck Volume</strong></td>
<td>4 trucks</td>
<td>4-5 McDonalds deliveries</td>
<td>None, except special events</td>
</tr>
<tr>
<td><strong>Max. No. of Trucks in Loading Area</strong></td>
<td>3 trucks</td>
<td>1 truck</td>
<td>2 trucks or 1 tractor trailer</td>
</tr>
<tr>
<td><strong>Service Drive, Curb Cut</strong></td>
<td>Entrance/Exit on 4th St.: 57 wide</td>
<td>Entrance/Exit on 4th St.: 48 wide shared with parking</td>
<td>Entrance/Exit on Independence Ave.: 22' 6 wide</td>
</tr>
<tr>
<td><strong>Restrictions</strong></td>
<td>Dock doesn't accommodate tractor trailer, must unload on 4th St.</td>
<td>12' clearance, trucks taller than 12' unload on 4th St.</td>
<td>14' Clearance. Single lane access, tractor trailer must back down</td>
</tr>
<tr>
<td><strong>Dock Management</strong></td>
<td>Truck arrivals are scheduled jointly with Facilities Management and Security. Deliveries are screened first by security staff on the loading platform, and then distributed to museum staff.</td>
<td></td>
<td>OFMR has two employees handling shipping and receiving on the loading dock. They receive and sign for ALL deliveries except for artifacts; deliver incoming shipments throughout the museums the same day of delivery; direct all truck activities.</td>
</tr>
</tbody>
</table>
Preferred Option 1 - Enter / Exit Southbound 14th Street

Design & Operational Aspects
SINGLE ON-SITE RAMP FROM SOUTHBOUND 14TH STREET

Description:
- All service vehicles enter and exit via southbound 14th Street.
- Bollard location at inside face of sidewalk.

PROS:

Site:
1) Truck traffic not visible from Washington Monument and its Grounds.
2) Does not interfere with pedestrian traffic to Museum or Washington Monument from Constitution, Madison or 15th Street.
3) Offers best opportunity to screen the loading dock with landscaping.
4) Perimeter security can be successfully integrated with and disguised by ramp’s retaining walls.
5) Required guard booth can be successfully integrated into the ramp’s construction.
6) Avoids conflicts with NMAAHC building entrances.
7) Satisfies Design Principles for integrating landscape with Washington Monument Grounds.

Operational:
1) Provides on-site access to NMAAHC loading dock.
2) Provides efficient and secure service to Museum and its collections.

Construction:
1) Construction activity limited to NMAAHC site.

CONS:

Traffic:
1) Access to 14th Street is from high traffic road.
2) Requires curb cut on 14th St. interrupting pedestrian traffic.
3) Incorporates a service ramp along 14th St., a sidewalk with a large volume of pedestrian traffic.

Operational:
1) Potentially requires deliveries to be coordinated outside peak traffic hours.

Construction:
1) Limited traffic disruptions during construction along 14th Street.

Implementation Strategies:
1) Covenant can be provided to ensure larger truck deliveries between 11:00 pm and 5:00 am. (Delivery by larger trucks are expected to be 5 per month).

Additional Cost Impact:
None
ON SITE OPTIONS

Preferred Option 1 - Enter / Exit Southbound 14th Street

EXISTING NMAH
BELOW GRADE
LOADING DOCK
EXTENT OF BELOW GRADE NMAH

PROPOSED NMAH
LOADING PLATFORM

0' 20' 40' 80' 160'

MADISON DRIVE
CONSTITUTION AVE

Constitution Avenue
Madison Drive
14th Street
15th Street

Curb Cut for Service Entry
Mountable Curb
Guard Booth
to Match NMAH, 4' x 4'
Re-located Bus Stop
Proposed Street Trees
Ramp to Below Grade Loading Dock
Enlarged Plan

AA

INTEGRATED GUARD BOOTH

INTEGRATED GUARD BOOTH (to Match NMAH, 4’ x 4’)

Mountable Curb

Ramp to Below Grade Loading Dock

Enlarged Plan

CONSTITUTION AVE CONSTITUTION AVE

MADISON DRIVE
Preferred Option 1 - Enter / Exit Southbound 14th Street

Streetscape Elevation - 14th Street looking West

Key Plan
Preferred Option 1 - Enter / Exit Southbound 14th Street
**Option 1A - Enter / Exit Southbound 14th Street with Sally Port**

**Design & Operational Aspects**

**SINGLE ON-SITE RAMP FROM SOUTHBOUND 14TH STREET**

**Description:**
- All service vehicles enter and exit via southbound 14th Street.
- Sally Port provides for security screening to occur on site.

**PROS:**

**Site:**
1. Truck traffic not visible from Washington Monument and its grounds.
2. Does not interfere with pedestrian traffic to Museum or Washington Monument from Constitution, Madison or 15th Street.
3. The loading ramp does not interfere with pedestrian traffic flow from Constitution and 14th Street diagonally to the Washington Monument.
4. Opportunity to screen the loading dock with landscaping.
5. Perimeter security can be successfully integrated with and disguised by ramp’s retaining walls.
6. Required guard booth can be successfully integrated into the ramp’s construction.
7. Avoids conflicts with NMAAHC building entrances.

**Traffic:**
1. Truck screening on site eliminates interference with traffic on 14 St. Sally Port provides off street truck waiting area prior to security inspection.

**Operational:**
1. Provides on-site access to NMAAHC loading dock.
2. Provides efficient and secure service to Museum and its collections.

**Construction:**
1. Construction activity limited to NMAAHC site.

**CONS:**

**Site:**
1. Truck screening on site increases security risks.

**Traffic:**
1. Access to 14th Street is from high traffic road.
2. Requires curb cut on 14th St. interrupting pedestrian traffic.
3. Incorporates a service ramp along 14th St., a sidewalk with a large volume of pedestrian traffic.

**Operational:**
1. Potentially requires deliveries to be coordinated outside peak traffic hours.

**Construction:**
1. Limited traffic disruptions during construction along 14th Street.

**Implementation Strategies:**
1. Covenant can be provided to ensure larger truck deliveries between 11:00 pm and 5:00 am.
   (Delivery by larger trucks are expected to be 5 per month).

**Additional Cost Impact:**

$800,000
Excludes hardening of building façade due to increased security risk.
ON SITE OPTIONS

Option 1A - Enter / Exit Southbound 14th Street with Sally Port

- Sally Port at Service Entry
- Curb Cut for Service Entry
- Mountable Curb
- Guard Booth (to Match NMAH, 4' x 4')
- Re-located Bus Stop
- Proposed Street Trees
- Ramp to Below Grade Loading Dock
- Enlarged Plan (see next page)

Constitution Avenue
Madison Drive
14th Street
15th Street
Curb Cut for Service Entry
Re-located Bus Stop
Proposed Street Trees
Ramp to Below Grade Loading Dock
Enters Sally Port

AA

FREELON ADJAYE BOND / SMITHGROUP
November 5, 2010
11
ON SITE OPTIONS

Option 1A - Enter / Exit Southbound 14th Street with Sally Port

- Security Wall Hidden in Planting
- Ramp to Below Grade Loading Dock
- Shrub/Perennial Planting to Screen Loading Dock Walls
- Security Bollards
- Re-Located Bus Stop
- Guard Rail Along Top of Wall
- Truck Layby Area
- Security Bollards
- Textured Paving at Loading Dock Entry
- Mountable Curb
- Curb Cut for Service Entry
- Stone Retaining/Security Wall
- Tree Planting Zone
- Guard Booth to Match NMAH 4' x 4'

Security Bollards

Sally Port Enlarged Plan (Rotated 90 degrees)
ON SITE OPTIONS

Option 1A - Enter / Exit Southbound 14th Street with Sally Port

Streetscape Elevation - 14th Street looking West

Key Plan

FREELOW ADIAYE BOND / SMITHGROUP
November 5, 2010
**ON SITE OPTIONS**

### Option 2 - Enter / Exit Via Northbound 15th Street

**Design & Operational Aspects**

**SINGLE ON-SITE RAMP FROM NORTHBOUND 15TH STREET**

**Description:**

- All service vehicles enter and exit via northbound 15th Street.

**PROS:**

**Site:**

1. Provides on-site access to NMAAHC loading dock from a street with less traffic volume than 14th Street.
2. Perimeter security can be successfully integrated with and disguised by ramp’s retaining walls.
3. Required guard booth can be integrated into the ramp’s construction.
4. Avoids conflicts with NMAAHC building entrances.
5. Increases opportunities for greater continuity in landscape between two adjacent museums.

**Traffic:**

1. Does not interfere with pedestrian traffic to Museum or Washington Monument from Madison or 14th Street.

**Operational:**

1. Provides on-site access to NMAAHC loading dock.
2. Provides efficient and secure service to Museum and its collections.

**Construction:**

1. Construction activity limited to NMAAHC site.

**CONS:**

**Site:**

1. Delivery traffic visible from Washington Monument Grounds.
2. Interrupts the integration of the NMAAHC landscape with that of the Washington Monument Grounds.
3. Opportunities to screen loading dock on 15th St. are reduced by characteristics of Washington Monument Grounds landscape.
4. Reduces outdoor program area.
5. Interrupts aesthetically and historically significant views to the Washington Monument and the Lincoln Memorial.

**Traffic:**

1. Incorporates a service ramp across sidewalk interrupting pedestrian traffic.
2. Increases truck traffic on a street that is perceived as being part of the Washington Monument Grounds.

**Operational:**

1. Potentially requires deliveries to be coordinated outside peak hours.

**Construction:**

1. Limited traffic disruptions during construction along 15th Street.

**Additional Cost Impact:**

$2.2M
**ON SITE OPTIONS**

### Option 3 - Enter / Exit Via Eastbound Constitution Ave

**Design & Operational Aspects**
SINGLE ON-SITE RAMP FROM EASTBOUND CONSTITUTION AVENUE

**Description:**
- All service vehicles enter and exit via eastbound Constitution Avenue.

**PROS:**
**Site:**
1. Perimeter security can be successfully integrated with and disguised by ramp’s retaining walls.
2. Required guard booth can be integrated into the ramp’s construction.
3. Increases opportunities for greater continuity in landscape between NMAH & NMAAHC.

**Traffic:**
1. Does not interfere with pedestrian traffic to Museum or Washington Monument from Madison, 14th or 15th Street.

**Operational:**
1. Provides on-site access ramp to NMAAHC loading dock.
2. Efficient and secure service to Museum and its collections.

**Construction:**
1. Construction activity limited to NMAAHC site.

**CONS:**
**Site:**
1. Entry ramp access is situated below the 100-year flood plain.
2. Interferes with public entrance to Museum on Constitution Ave.
3. Incorporates a service ramp along a sidewalk with a large volume of pedestrian traffic.
4. The loading ramp interferes with pedestrian traffic flow from Constitution and 14th Street diagonally to the Washington Monument.
5. Truck traffic will be visible from Washington Monument and its grounds.
6. Does not offer good opportunity to screen the loading dock with landscaping.
7. Ramp crosses site from N-S reducing space available for programming underground thus pushing program above grade.

**Traffic:**
1. Access from Eastbound Constitution Avenue is from high traffic road (higher than 14th St in AM).
2. Requires curb cut on Constitution Avenue (an important ceremonial street).

**Operational:**
1. Potentially requires deliveries to be coordinated outside peak hours.
2. Provides for inefficient below grade program layout.

**Construction:**
1. Limited traffic disruptions during construction along Constitution Avenue.

**Additional Cost Impact:**

$1.0M
ON SITE OPTIONS

Option 4 - Enter / Exit Via Westbound Madison Drive

**Design & Operational Aspects**
SINGLE ON-SITE RAMP FROM WESTBOUND MADISON DRIVE

**Description:**
- All service vehicles enter and exit via westbound Madison Drive.

**Option NOT feasible.**
1) Trucks will not clear the building at building line, therefore this option is not feasible.
**Option 5 - Enter 14th St. Southbound / Exit 15th St. Northbound**

**Design & Operational Aspects**

**TWO ON-SITE RAMPs: ENTER AT 14TH STREET / EXIT AT 15TH STREET**

**Description:**
- All service vehicles enter on 14th St. and exit on 15th Street

**PROS:**

- **Site:**
  1. Perimeter security can be successfully integrated and disguised by ramp’s retaining walls.
  2. Required guard booth can be successfully integrated into the ramp’s construction.

- **Traffic:**
  1. Does not interfere with pedestrian traffic to Museum or Washington Monument from Constitution Avenue or Madison Drive.
  2. Spreads potential conflicts with traffic to two streets.

- **Operational:**
  1. Efficient and secure service to Museum and its collections.

- **Construction:**
  1. Construction activities limited to NMAAHC site.

**CONS:**

- **Site:**
  1. One way loading loop doubles the quantity of ramps needed with separate entry and exit.
  2. Traffic visible from Washington Monument Grounds.
  3. Incorporates a service ramp along two sidewalks providing pedestrian traffic.
  4. Interrupts the integration of the NMAAHC landscape with that of the Washington Monument Grounds.
  5. The loading ramp is in conflict with the existing curvilinear path design of the Washington Monument Grounds.
  6. Opportunities to screen ramp on 15th St. are reduced by characteristics of Washington Monument Grounds landscape.
  7. Reduces outdoor program area.
  8. Interrupts aesthetically and historically significant views to the Washington Monument.

- **Traffic:**
  1. Access from 14th Street is from high traffic road.
  2. Requires curb cut on both 14th St. and 15th St. interrupting pedestrian traffic at two locations.

- **Operational:**
  1. Potentially requires deliveries to be coordinated outside peak hours.

- **Construction:**
  1. Traffic disruptions during construction spread along 14th and 15th Street.

**Additional Cost Impact:**

$3.6M
EXISTING NMAH BELOW GRADE LOADING DOCK

PROPOSED NMAH

EXISTING UTILITIES

EXISTING NMAH LOADING PLATFORM

EXISTING NMAH BELOW GRADE LOADING DOCK

NMAH SERVICE ENTRY

INTEGRATED GUARD BOOTH

Storm Line 13' below grade

15th St. to 12th St. Section

EXISTING

SITE KEY

- Water
- Sewer
- Electric
- Communication
- Storm Line
- Gas Line
- Existing Loading Dock

OFF-SITE OPTIONS (STUDIES REQUESTED BY DC SHPO, CFA, DC PLANNING)

NMAH Loading Dock Existing Conditions - 42’ Truck @ NMAH
Simplified Outline of Tunnel Construction Sequence Under 14th Street

1. Close one lane at a time
2. Construction and lay down area prior to and beyond the excavation area.
3. Excavate down to required depth of tunnel (approx. 38'). Utilities vary according to lane location so each will have to be protected, supported, and kept in operation for the duration of construction (the storm line will be the most difficult).
4. Install slurry wall/secant wall for the segment of excavation and control seepage into site.
5. Install foundations, structural walls, and slabs.
6. Waterproof all surface.
7. Backfill sufficient to eliminate settlement for all utilities and final paving above.
8. Remove construction and open lane.
9. Repeat process seven times.

Additional Impact:

12 - 18 Month Construction

Description:

1) Requires tunnel roadbed depth of 38' below 14th Street to clear utility Storm Line Invert which lies at 13' below 14th Street. 14th Street tunnel construction likely to be an open cut, with major impacts to traffic on 14th St:
   a) Shut down a lane at a time
   b) Prolong work of going across all seven lanes on 14th St.
   c) Inadequacy of construction equipment to operate on a single lane, requiring 2 lanes during major portions of the tunnel construction.
OFF-SITE OPTIONS (STUDIES REQUESTED BY DC SHPO, CFA, DC PLANNING)

TUNNEL OPTION A - 55' TRUCK

Storm Line
13' below grade

15th St. to 12th St. Section
55' Truck
TUNNEL OPTION A – TRUCKS UP TO 55’

Design & Operational Aspects

SHARED NMAH & NMAAHC SERVICE RAMPS - ENTER 12TH/EXIT 15TH ST

Description:

- All service vehicle traffic for both museums enter and on NMAH’s 12th Street service entrance.
- NMAH vehicles would use their present loading dock, travel under 14th St. Tunnel, cross NMAAHC loading dock and exit on 15th street.
- NMAAHC vehicles would cross NMAH loading dock, travel under 14th St. Tunnel, use dock at NMAAHC site and exit on 15th street.
- Existing NMAH exit ramp at 14th Street would be eliminated.
- A new exit ramp from NMAH would be required at a lower elevation to cross 14th Street and avoid interference with current utility lines.
- Required changes at NMAH existing facilities would be:
  a) Maneuvering areas at NMAH would require considerable increase in size to accommodate additional traffic.
  b) New storage areas will need to be constructed to provide for horticulture, hazardous materials, garbage and recycling of NMAH as their current location on the dock would interfere with new dock operation.

PROS:

Site:
1) Perimeter security can be successfully integrated with and disguised by ramp’s retaining walls.
2) Increases opportunities for greater continuity in landscape between two adjacent museums.

Traffic:
1) Avoids all service ramp and curb cuts on 14th Street for both Museums.
2) Does not interfere with pedestrian circulatin on the NMAAHC site.

Operational:
1) Provides better direct access to and from NMAAHC loading dock than other tunnel options explored.
2) Provides safe service to both Museums.
3) No additional guard booth is required.

Construction:
None

CONS:

Site:
1) Tunnel resides below the water table and would require added depth and seepage control at a minimum.
2) Traffic visible from Washington Monument Grounds.
3) Interrupts the integration of the NMAAHC landscape with that of the Washington Monument Grounds.
4) Interrupts aesthetically and historically significant views to the Washington Monument and the Lincoln Memorial.
5) Interferes with pedestrian traffic flow to the Monument along 15th Street and in conflict with the existing curvilinear path design of the Washington Monument Grounds.
6) Opportunities to screen loading dock on 15th St. are reduced by characteristics of Washington Monument Grounds landscape.
7) Reduces outdoor program area.

Traffic:
1) Incorporates a service ramp across 15th St. sidewalk interrupting pedestrian traffic.
2) Increases truck traffic on a street that is perceived as part of the Washington Monument Grounds.
3) Sharing of ingress ramp would extend the time required for deliveries, making it more difficult to schedule the majority of them in non-peak traffic times.
4) In spite of best Museum efforts to monitor traffic, it may result in uncooperative service vehicle driver’s double parking, pulling up on sidewalks and otherwise causing unsafe and unappealing conditions.
5) Existing NMAH ramp does not have clearance required for large trucks & fire engines

Operational:
1) Construction of this expanded loading dock at NMAH would occur during time of significant construction of renovations and exhibits at NMAH already requiring increase delivery activities.
2) Large exhibits would need to be unloaded on the street because large trucks cannot enter the ingress ramps, compromising collections, and disturbing traffic.

Construction:
1) Requires tunnel roadbed depth of 36'-6” below 14th Street to clear utility Storm Line Invert which lies at 13’ below 14th Street. 14th Street tunnel construction likely to be an open cut, with major impacts to traffic on 14th St;
   a) Shut down a lane at a time
   b) Prolong work of going across all seven lanes on 14th St.
   c) Inadequacy of construction equipment to operate on a single lane, requiring 2 lanes during major portions of the tunnel construction.

Additional Cost Impact:

$23.5M
Does not include 14th St. utilities work
OFF-SITE OPTIONS (STUDIES REQUESTED BY DC SHPO, CFA, DC PLANNING)

TUNNEL OPTION A - 73' TRUCK

SITE KEY
- 55' Truck - Arriving
- 73' Truck - Arriving
- 55' Truck - Departing
- 73' Truck - Departing
- New Construction
- Existing Loading Dock

Storm Line
13' below grade

15th St. to 12th St. Section
73' Truck
TUNNEL OPTION A - 73' TRUCK

Design & Operational Aspects

SHARED NMAH & NMAAHC SERVICE RAMPS - ENTER 12TH/EXIT 15TH ST

Description:

• All service vehicle traffic for both museums enter and on NMAH’s 12th Street service entrance.
• NMAH vehicles would use their present loading dock, travel under 14th St. Tunnel, cross NMAAHC loading dock and exit on 15th street.
• NMAAHC vehicles would cross NMAH loading dock, travel under 14th St. Tunnel, use dock at NMAAHC site and exit on 15th street.
• Existing NMAH exit ramp at 14th Street would be eliminated.
• A new exit ramp from NMAH would be required at a lower elevation to cross 14th Street and avoid interference with current utility lines.
• Required changes to accommodate a 73’ truck at NMAH existing facilities would be:
  a) Existing ingress and egress drives, ramps, and maneuvering areas at NMAH would require considerable increase in size to accommodate additional traffic.
  b) New storage areas will need to be constructed to provided for horticulture, hazardous materials, garbage and recycling of NMAH as their current location on the dock would interfere with new dock operation.

PROS:

Site:
1) Perimeter security can be successfully integrated with and disguised by ramp’s retaining walls.
2) Increases opportunities for greater continuity in landscape between two adjacent museums.

Traffic:
1) Avoids all service ramp and curb cuts on 14th Street for both Museums.
2) Does not interfere with pedestrian circulatin on the NMAAHC site.

Operational:
1) Provides better direct access to and from NMAAHC loading dock than other tunnel options explored.
2) Provides safe service to both Museums.
3) No additional guard booth is required.

CONS:

Site:
1) Tunnel resides below the water table and would require added depth and seepage control at a minimum.
2) Traffic visible from Washington Monument Grounds.
3) Interrupts the integration of the NMAAHC landscape with that of the Washington Monument Grounds.
4) Interrupts aesthetically and historically significant views to the Washington Monument and the Lincoln Memorial.
5) Interferes with pedestrian traffic flow to the Monument along 15th Street and in conflict with the existing curvilinear path design of the Washington Monument Grounds.
6) Opportunities to screen loading dock on 15th St. are reduced by characteristics of Washington Monument Grounds landscape.
7) Reduces outdoor program area.

Traffic:
1) Incorporates a service ramp across 15th St. sidewalk interrupting pedestrian traffic.
2) Increases truck traffic on a street that is perceived as part of the Washington Monument Grounds.
3) Sharing of ingress ramp would extend the time required for deliveries, making it more difficult to schedule the majority of them in non-peak traffic times.
4) In spite of best Museum efforts to monitor traffic, it may result in uncooperative service vehicle driver’s double parking, pulling up on sidewalks and otherwise causing unsafe and unappealing conditions.

Operational:
1) Construction of this expanded loading dock at NMAH would occur during time of significant construction of renovations and exhibits at NMAH already requiring increase delivery activities.

Construction:
1) Requires tunnel roadbed depth of 38’ below 14th Street to clear utility Storm Line Invert which lies at 13’ below 14th Street. 14th Street tunnel construction likely to be an open cut, with major impacts to traffic on14th St;
   a) Shut down a lane at a time
   b) Prolong work of going across all seven lanes on 14th St.
   c) Inadequacy of construction equipment to operate on a single lane, requiring 2 lanes during major portions of the tunnel construction.
2) Existing NMAH ramp does not have clearance required for large trucks & fire engines and cannot easily be altered. Accommodating a 73’ truck requires major retro fit of NMAH loading & service entry including: ramps, at & below grade drive lanes, & maneuvering areas.

Additional Cost Impact:

$33.8M
Does not include 14th St. utilities work
TUNNEL OPTION B - TRUCKS UP TO 55’

Design & Operational Aspects

SHARED NMAH & NMAAHC SERVICE RAMPS ENTER 12TH & EXIT 14th FROM NMAH, WITH ADDITIONAL TRUCK TUNNEL UNDER 14TH ST TO NMAAHC

Description:
- All service vehicle traffic for both museums enters and exits on NMAH’s 12th Street service entrance and 14th Street service exit.
- A new truck tunnel would be constructed parallel to the existing NMAH’s truck exit ramp, crossing under 14th Street and entering the NMAAHC site to its underground service area.
- Trucks and other vehicles would turn around at NMAAHC and return through the same tunnel to the NMAH loading area.
- The NMAH truck maneuvering area would be expanded so that all vehicles returning from NMAAHC could make a turn to exit from the existing NMAH 14th St. exit ramp.
- A new service ramp from NMAH would be required at a lower elevation to cross 14th Street and avoid interference with current utility lines.
- Required changes at NMAH existing facilities would be:
  a) Maneuvering areas at NMAH would require considerable increase in size to accommodate additional traffic.
  b) Recent and on-going construction above this area would need to be demolished and reconstructed.
  c) Closure of South entrance to Museum during construction.
  d) New storage areas will need to be constructed to provide for horticulture, hazardous materials, garbage and recycling of NMAH as their current location on the dock would interfere with new dock operation.

Pros:

Site:
1) No visibility from Washington Monument Grounds.
2) Does not affect integration of landscape to Washington Monument Grounds.
3) Does not interrupt aesthetically and historically significant views to the Washington Monument.
4) Increases opportunities for greater continuity in landscape between two adjacent museums.

Traffic:
1) Avoids all service ramp and curb cuts on NMAAHC site.
2) Does not interfere with pedestrian circulation on the NMAAHC site

Operational:
1) Improves perimeter security at NMAAHC.

Construction:
None

Cons:

Site:
1) Negative site impacts upon NMAAHC have been transferred to NMAH due to increase in delivery traffic.
2) Tunnel resides below the water table and would require added depth and seepage control at a minimum.

Traffic:
1) The complex traffic pattern would inconvenience NMAAHC access and exit strategy to VIP limousine, ambulance or similar vehicle.
2) Sharing of the ramps would extend the time required for deliveries, making it more difficult to schedule the majority of them in non-peak traffic times.
3) Increased exiting traffic will extend period of time that traffic will enter 14th St. Northbound.
4) In spite of best Museum efforts to monitor traffic, it may result in uncooperative service vehicle driver’s double parking, pulling up on sidewalks and otherwise causing unsafe and unappealing conditions.

Existing NMAH ramp does not have clearance required for large trucks & fire engines

Operational:
1) Inefficient service to NMAAHC.
2) Large exhibits would need to be unloaded on exterior NMAH ramp and transported on ground across 14th Street.
3) Increased cost for goods and services due to the added time and inconvenience for pickups and deliveries to NMAAHC.
4) Construction of this expanded loading dock at NMAH would occur during time of significant construction of renovations and exhibits at NMAH already requiring increased delivery activities.
5) Increase of operations budgets for both Museums due to increased workload and need for additional staff at docks, and to monitor and schedule deliveries.

Construction:
1) Requires tunnel roadbed depth of 36’-6” below 14th Street to clear utility Storm Line Invert which lies at 13’ below 14th Street. 14th Street tunnel construction likely to be an open cut, with major impacts to traffic on 14th St:
   a) Shut down a lane at a time
   b) Prolong work of going across all seven lanes on 14th St.
   c) Inadequacy of construction equipment to operate within a single lane, requiring closing of 2 lanes during major portions of the tunnel construction.

Additional Cost Impact:

$34.1M

Does not include utilities work
OFF-SITE OPTIONS (STUDIES REQUESTED BY DC SHPO, CFA, DC PLANNING)

TUNNEL OPTION B - 73' TRUCK

TUNNEL OPTION B - 73' TRUCK

EXISTING NMAH BELOW GRADE LOADING DOCK

EXTENT OF BELOW GRADE NMAH

PROPOSED NMAAHC

LOADING PLATFORM

INTEGRATED GUARD BOOTH

INTEGRATED GUARD BOOTH

storm line 13' below grade

15th St. to 12th St. Section

73' Truck

SITE KEY

55' Truck - Arriving

73' Truck - Arriving

55' Truck - Departing

73' Truck - Departing

New Construction

Existing Loading Dock

see turning diagram on adjacent page
TUNNEL OPTION B - 73’ TRUCK

Design & Operational Aspects

SHARED NMAH & NMAAHC SERVICE RAMPS ENTER 12TH & EXIT 14th FROM NMAH, WITH ADDITIONAL TRUCK TUNNEL UNDER 14TH ST TO NMAH

Description:
- All service vehicle traffic for both museums enters and exits on NMAH’s 12th Street service entrance and 14th Street service exit.
- A new truck tunnel would be constructed parallel to the existing NMAH’s truck exit ramp, crossing under 14th Street and entering the NMAAHC site to its underground service area.
- Trucks and other vehicles would turn around at NMAAHC and return through the same tunnel to the NMAH loading area.
- The NMAH truck maneuvering area would be expanded so that all vehicles returning from NMAAHC could make a turn to exit from the existing NMAH 14th St. exit ramp.
- A new service ramp from NMAH would be required at a lower elevation to cross 14th Street and avoid interference with current utility lines.
- Required changes to accommodate a 73’ truck at NMAH existing facilities would be:
  a) Existing NMAH ramp does not have clearance required for large trucks & fire engines and cannot easily be altered. Accommodating a 73’ truck requires major retrofit of NMAH loading & service entry including: ramps, at & below grade drive lanes, & maneuvering areas.
  b) Recent and on-going construction above this area would need to be demolished and reconstructed
  c) Closure of South entrance to Museum during construction.
  d) New storage areas will need to be constructed to provide for horticulture, hazardous materials, garbage and recycling of NMAH as their current location on the dock would interfere with new dock operation.

PROS:
- Site:
  1) No visibility from Washington Monument Grounds.
  2) Does not affect integration of landscape to Washington Monument Grounds.
  3) Does not interrupt aesthetically and historically significant views to the Washington Monument.
  4) Increases opportunities for greater continuity in landscape between two adjacent museums.
- Traffic:
  1) Avoids all service ramp and curb cuts on NMAAHC site.
  2) Does not interfere with pedestrian circulation on the NMAAHC site.
- Operational:
  1) Improves perimeter security at NMAAHC. No additional guard booth is required.
- Construction:
  None

CONS:
- Site:
  1) Negative site impacts upon NMAAHC have been transferred to NMAH due to increase in delivery traffic.
  2) Tunnel resides below the water table and would require added depth and seepage control at a minimum.
- Traffic:
  1) The complex traffic pattern would inconvenience NMAAHC access and exit strategy to VIP limousine, ambulance or similar vehicle.
  2) Sharing of the ramps would extend the time required for deliveries, making it more difficult to schedule the majority of them in non-peak traffic times.
  3) Increased exiting traffic will extend period of time that traffic will enter 14th St. Northbound.
  4) In spite of best Museum efforts to monitor traffic, it may result in uncooperative service vehicle driver’s double parking, pulling up on sidewalks and otherwise causing unsafe and unappealing conditions.
- Operational:
  1) Inefficient service to NMAAHC.
  2) Increased cost for goods and services due to the added time and inconvenience for pickups and deliveries to NMAAHC.
  3) Construction of this expanded loading dock at NMAH would occur during time of significant construction of renovations and exhibits at NMAH already requiring increased delivery activities.
  4) Increase of operations budgets for both Museums due to increased workload and need for additional staff at docks, and to monitor and schedule deliveries.
- Construction:
  1) Requires tunnel roadbed depth of 38’ below 14th Street to clear utility Storm Line Invert which lies at 13’ below 14th Street. 14th Street tunnel construction likely to be an open cut, with major impacts to traffic on 14th St:
   a) Shut down a lane at a time
   b) Prolong work of going across all seven lanes on 14th St.
   c) Inadequacy of construction equipment to operate within a single lane, requiring closing of 2 lanes during major portions of the tunnel construction.
  2) Existing NMAH ramp does not have clearance required for large trucks & fire engines and cannot easily be altered. Accommodating a 73’ truck requires major retrofit of NMAH loading & service entry including: ramps, at & below grade drive lanes, & maneuvering areas.

Additional Cost Impact:
$52.4M
Does not include 14th St. utilities work
OFF-SITE OPTIONS (STUDIES REQUESTED BY DC SHPO, CFA, DC PLANNING)

TUNNEL OPTION C - 55' TRUCK w MATERIALS TUNNEL

SITE KEY
- 55' Truck - Arriving
- 55' Truck - Departing
- New Construction
- Existing Loading Dock

Storm Line
13' below grade

15th St. to 12th St. Section
55' Truck
TUNNEL OPTION C - TRUCKS UP TO 55' w MATERIALS TUNNEL

Design & Operational Aspects

- SHARED NMAH & NMAAHC SERVICE RAMPS - ENTER 12TH/EXIT 14TH FROM NMAH. EXPAND AMERICAN HISTORY’S UNDERGROUND SERVICE AREA TO SERVE 2 MUSEUMS w/ NMAAHC SERVED BY MATERIALS HANDLING TUNNEL

Description:
- All service vehicle traffic for both museums enters on NMAH's 12th Street service entrance and exit along 14th Street.
- A new loading dock for NMAAHC is created adjacent to existing NMAH’s loading dock with shared truck maneuvering space.
- A new materials handling tunnel would be constructed parallel to the existing NMAH's truck exit ramp, crossing under 14th Street while avoiding interference with current utility lines, and entering the NMAAHC site to its underground service area.
- Required changes at NMAH existing facilities would be:
  a) Maneuvering areas at NMAH would require considerable increase in size to accommodate additional traffic.
  b) Requires additional docks to serve NMAAHC at NMAH.
  c) Number of docks at NMAH will need to increase to provide required separation of collection from food supplies for new museum.
  d) New storage areas will need to be constructed to provide for horticulture, hazardous materials, garbage and recycling of NMAH as their current location on the dock would interfere with new dock operation.

Site:
1) Avoids all service ramp and curb cuts on NMAAHC site.
2) Does not interfere with pedestrian circulation on the NMAAHC site.
3) Avoids significant disruption to site. Does not affect integration of landscape to Washington Monument Grounds.
4) Does not interrupt aesthetically and historically significant views to the Washington Monument.
5) Increases opportunities for greater continuity in landscape between two adjacent museums.

Traffic:
1) Avoids all service ramp and curb cuts on NMAAHC site.
2) Does not interfere with pedestrian circulation on the NMAAHC site.

Operational:
1) Avoids all service ramp and curb cuts on NMAAHC site.

Additional Cost Impact:
$28.4M
Does not include 14th St. utilities work
OFF-SITE OPTIONS (STUDIES REQUESTED BY DC SHPO, CFA, DC PLANNING)

TUNNEL OPTION C - 73' TRUCK w MATERIALS TUNNEL

EXISTING NMAH BELOW GRADE LOADING DOCK

PROPOSED NMAH

INTEGRATED GUARD BOOTH

INTEGRATED GUARD BOOTH

Storm Line 13' below grade

SITE KEY

- 55' Truck - Arriving
- 73' Truck - Arriving
- 55' Truck - Departing
- 73' Truck - Departing
- New Construction
- Existing Loading Dock

see turning diagram on adjacent page
TUNNEL OPTION C - 73’ TRUCK w MATERIALS TUNNEL

**Design & Operational Aspects**

**SHARED NMAH & NMAAHC SERVICE RAMPS - ENTER 12TH/EXIT 14TH FROM NMAH. EXPAND AMERICAN HISTORY'S UNDERGROUND SERVICE AREA TO SERVE 2 MUSEUMS w NMAAHC SERVED BY MATERIALS HANDLING TUNNEL**

**Description:**
- All service vehicle traffic for both museums enters on NMAH’s 12th Street service entrance and exit along 14th Street.
- A new loading dock for NMAAHC is created adjacent to existing NMAH’s loading dock with shared truck maneuvering space.
- A new materials handling tunnel would be constructed parallel to the existing NMAH’s truck exit ramp, crossing under 14th Street while avoiding interference with current utility lines, and entering the NMAAHC site to its underground service area.
- Required changes to accommodate a 73’ truck at NMAH existing facilities would be:
  a) Existing ingress and egress drives, ramps, and maneuvering areas at NMAH would require considerable increase in size to accommodate additional traffic.
  b) Requires additional docks to serve NMAAHC at NMAH
  c) Number of docks at NMAH will need to increase to provide required separation of collection from food supplies for new museum.
  d) New storage areas will need to be constructed to provide for horticulture, hazardous materials, garbage and recycling of NMAH as their current location on the dock would interfere with new dock operation.
  e) Requires additional isolation, decontamination and security area at NMAH.

**PROS:**

**Site:**
1) Avoids all service ramp and curb cuts on NMAAHC site.
2) Does not interfere with pedestrian circulation on the NMAAHC site.
3) Does not affect integration of landscape to Washington Monument Grounds.
4) Does not interrupt aesthetically and historically significant views to the Washington Monument.
5) Increases opportunities for greater continuity in landscape between the adjacent museums.

**Traffic:**
1) Avoids all service ramp and curb cuts on NMAAHC site.
2) Does not interfere with pedestrian circulation on the NMAAHC site.

**Operational:**
1) Improves perimeter security at NMAAHC. No additional guard booth is required.

**Construction:**
None

**CONS:**

**Site:**
1) Tunnel resides below the water table and would require added depth and seepage control at a minimum.

**Traffic:**
1) Increased exiting traffic will extend period of time that traffic will enter 14th St. Northbound.
2) In spite of best Museum efforts to monitor traffic, it may result in uncooperative service vehicle drivers double parking, pulling up on sidewalks and otherwise causing unsafe and unappealing conditions.
3) The lack of an onsite loading dock and underground vehicle access would limit discreet access to the museum by VIP limousine, ambulance or similar vehicle.
4) Sharing of the loading area and ramps would extend the time required for deliveries, making it more difficult to schedule the majority of them in non-peak traffic times.

**Operational:**
1) Compromises environmental and hygienic conditions required for the handling of collections.
2) Compromise the delivery and safety of sensitive collections through increase of handling, transit time and movement.
3) Inefficient service to NMAAHC and its collections.
4) Requires additional unloading and loading of all materials received at NMAH.
5) Requires NMAAHC docks at both NMAH location and at NMAAHC site.
6) Inadequate shipping/receiving facilities compromises ability of Museum to obtain and safeguard collection loans from other facilities.
7) Construction of this expanded loading dock at NMAH would occur during time of significant construction of renovations and exhibits at NMAH already requiring increase delivery activities.
8) Increased costs for goods and services due to the added time and inconvenience for pickups and deliveries to both museums.
9) Increase of operations budget due to increase workload and need for additional staff at docks, and to monitor and schedule deliveries.

**Construction:**
1) Requires tunnel roadbed depth of 36’-6” below 14th Street to clear utility Storm Line Invert which lies at 13’ below 14th Street. 14th Street tunnel construction likely to be an open cut, with major impacts to traffic on 14th St.
   a) Shut down a lane at a time
   b) Prolong work of going across all seven lanes on 14th St.
   c) Inadequacy of construction equipment to operate on a single lane, requiring 2 lanes during major portions of the tunnel construction.
2) Existing NMAH ramp does not have clearance required for large trucks & fire engines and cannot easily be altered. Accommodating a 73’ truck requires major retro fit of NMAH loading & service entry including: ramps, at & below grade drive lanes, & maneuvering areas.

**Additional Cost Impact:**

$40.6M
Does not include 14th St. utilities work