<u>GALLERY PLACE – CHINATOWN</u> <u>STATION PASSAGEWAY</u> RFI – 18 Gallery Place Station



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RFI Guidelines

Please note that this Request for Information (RFI) is for INFORMATIONAL and PLANNING purposes only and does not constitute a Request for Proposal (RFP) and does not constitute a commitment implied or otherwise that WMATA will take procurement action in this matter. Responses to this RFI will not be accepted by The Washington Metropolitan Area Transit Authority (WMATA) to form a binding contract.

The purpose of this RFI is to provide an opportunity for industry to enhance the success of any future procurement to meet this requirement by providing input on the overall project feasibility and recommended project approach for constructing a diagonal passageway at the Gallery Place - Chinatown Station. Any information obtained as a result of this RFI is intended to be used by WMATA on a non-attribution basis for program planning and acquisition strategy development.

WMATA's evaluation and possible selection of Respondents for further discussions is a business decision and will be based upon a composite of Respondents' responses to the factors set forth under "Information Requested" below.

The responses shall include a first submittal to show the recommended approach based on past relevant experience completing similar projects. This first submittal shall take the form of a brief memorandum, with a 5-page maximum. Based on evaluation of the first submittals, WMATA will select up to five Respondents to prepare more detailed second submittals, and will provide a stipend of \$150,000 for acceptable second submittals.

In submitting a response to this RFI, Respondents agree that WMATA will not provide its rationale for the selection or non-selection of a company to receive the \$150,000 stipend; any selection or rejection by WMATA is final and indisputable. However, all Respondents will receive an acknowledgement as to their selection for, or removal from, further consideration. Responding or not responding to the RFI would not preclude a company from future business opportunities on this project.

Confidential Information

The information contained in this Request for Information (RFI) and in the responses to the RFI is confidential and proprietary to WMATA and to the companies responding to the RFI. In accepting this RFI, WMATA and the companies agree to the following conditions, under USA law:

1. Each party recognizes and agrees that the Confidential Information has been compiled, created and maintained by special effort and expense of the other party.

2. Each party recognizes and agrees that disclosing or disseminating Confidential Information to a third party will have a materially adverse effect on the other party and

agrees not to disclose or disseminate the Confidential Information to any third party. Except as necessary to perform its obligations hereunder, each party shall not use, reproduce or draw upon the Confidential Information or circulate it within its own organization.

3. Each party shall provide notice to the other party of any demand made upon it under lawful process to disclose or provide the other party's Confidential Information. Such party agrees to co-operate with the other party if it elects to seek reasonable protective arrangements or oppose such disclosure, at the expense of the party that is seeking the protective arrangements or opposing the disclosure.

4. Any Confidential Information disclosed pursuant to such lawful process shall continue to be Confidential Information, the access to such Confidential Information shall be limited to those persons (i) only with a need to review such information for the purposes for which the disclosure was required, and (ii) who agree in writing to keep the Confidential Information confidential.

Project Introduction

WMATA is seeking expertise from industry on the approach and feasibility of constructing a passageway at the Gallery Place-Chinatown Station. Through this industry input WMATA will develop its recommended approach to executing the project including, construction methods, staging and sequencing, assessing risks and costs. WMATA will use this input to establish confidence in the feasibility of executing the project.

In 2013, WMATA completed an extensive study to address Gallery Place-Chinatown Station capacity constraints in light of high levels of crowding and increased safety risk. Passenger safety can be at risk when platforms become too crowded or when escalators/stairs are unable to clear before the arrival of the next train.

The study recommended construction of a diagonal pedestrian passageway ("passageway") between the westbound Red Line platform and the Green/Yellow Line mezzanine. The recommended configuration is illustrated in **Figure 1**.

The passageway would allow passengers to bypass the crowded tunnel junction and provide additional area to alleviate platform crowding and facilitate efficient movement through the station, especially in the critical area on the westbound Red Line platform. The passageway significantly reduces the severe congestion on the westbound Red line platform and distributes passengers along the full length of the platform. The percentage of passengers experiencing severe crowding (less than 7 square feet per person) in the AM and PM peak periods would be reduced from 51% to 27%.

The passageway configuration includes provision for emergency egress to street level via a stairway and a hatch that would open onto the sidewalk, likely along G Street NW.

Appendix A includes the conceptual design of the proposed passageway.



Figure 1: Recommended Passageway Configuration (2013)

Passageway Considerations

The passageway would require construction under historic buildings along G Street and 7th Street NW and cutting new openings in the existing station concrete vault walls (vault thickness varies along the cross section from 4'-0" to 7'-3") at the Red Line platform and the mezzanine above the Green and Yellow Line tracks. [Note: Red Line platform and mezzanine above Green and Yellow Line tracks are at the same elevation.]

Both mined and cut-and-cover tunneling approaches were considered for construction of the passageway. While mining the tunnel could save the buildings above the tunnel, it is not clear to WMATA that mining could be successfully accomplished in this location. The Red Line train room vault is offset to the south of the centerline of G Street NW. Under the mined option there is sufficient space to allow excavation of a shaft from the curb lane and sidewalk of G Street with partial street closure. The Green/Yellow Line train room vault is somewhat offset to the east of the centerline of 7th Street NW, however there is not sufficient space (approximately 7 feet) between the station vault structure and the basements of the historic buildings to allow for shaft excavation.

During construction of the Gallery Place-Chinatown Station extensive underpinning was built in the basements of the historic buildings along 7th Street to minimize any displacement. WMATA has information on the underpinning and pile locations on the station within the station as-built drawings (**Appendix B**).

Figure 2: Sketch of Proposed Passageway Configuration with Shaft for Construction Access



Figure 3: Existing Section at G Street NW (looking west)

Note - Portrait Gallery building at left; tunnel centerline offset to south of G Street



Figure 4: Existing Section at 7th Street NW (looking north) Note – Existing underpinning schematic shown for buildings at left; arena complex at right



Structural Assessment

A structural assessment completed as part of the 2013 study included assumptions on soil properties, results of structural modeling for the vault structures and adjacent buildings, and a summary of assumed construction methods and sequence. An overview is provided below. Refer to **Appendix C** for the structural assessment summary document.

Adjacent Buildings

A visual survey of the 3- to 4-story historic buildings along 7th Street and G Street NW was performed in 2012. The buildings were in good to fair condition with typical low rise brick masonry construction – masonry rubble walls, brick facades, wood floor joists and small diameter steel columns. The basement heights were typically 8 feet. A newer 7-story building at 775 G Street is not historic and not likely to contain a rubble masonry foundation.

Utilities

Several utility lines exist in the area directly above the passageway including sewer, water and electric. These utilities will need to be relocated or supported during construction. There is also an electrical vault in the G Street sidewalk that may need to be supported during construction.

Vault Penetrations and Structural Analysis

A critical aspect of the project is avoiding cracking and displacement in the station vault walls. A structural modeling analysis was done to assess whether the passageway with penetrations into the existing vault walls was a viable approach. Analysis including coordination with Metro structural engineers focused on modeled stresses and displacement of vault structures with construction of the passageway openings. The approach considered for the proposed openings in the existing vault walls involved construction of a reinforcing concrete collar beam around each of the proposed openings to transfer the loads from the existing station vaults to the new concrete collar. Optional shapes and structural details of the vault openings were analyzed as a way of minimizing stresses and displacement. Analysis was conducted for the permanent condition, but not for conditions during construction. An additional consideration is the effect of removing earth pressure from the vaults for passageway construction which was not part of the analysis.

Metro station vaults are based on 8'-4" bay segments which include structural support ribs as illustrated in **Figure 5**. There are six 8'-4" bay segments between contraction joints. Metro has not previously undertaken any construction involving cutting through the rib of a vault wall. The proposed passageway would cut through a minimum of two ribs.



Figure 5: Typical Structural Bay of Vault Wall

Metro engineers advised that the proposed openings should not occur at existing contraction joints, spaced at 50 feet intervals and shown as dashed blue lines on **Figure 1**. Metro structural engineers stated that reinforcing at the existing contraction joints does not extend into the adjacent sections indicating that loads and stresses are not transferred to adjacent tunnel sections.

Tunneling Methods and Geotechnical Considerations

Another critical aspect of this project is to minimize potential impacts to the existing buildings above. Factors relevant to ground displacement include water table, soil conditions and tunneling methods.

Based on as-built drawing information the ground water level at the time of the original construction was at elevation +8 feet. The street is at elevation +45 feet in the area of the project. Top of rail for the Red Line is at elevation -2 feet. The invert elevation for the proposed passageway will be approximately +2 feet. All elevations are approximate.

Based on soils information from Metro as-built drawings, the analysis considered two scenarios for potential settlement of the buildings along 7th Street as a result of tunneling. With existing soils, the maximum settlement was estimated at about 0.7 inches; with soil strengthening through jet grouting, the modeled settlement was reduced to about 0.3 inches.

The initial feasibility analysis considered a "forepoling" tunneling technique that would limit soil settlement and potential displacement of adjacent buildings. With respect to the existing piles, the approach considered modifying the forepoling to straddle existing piles, constructing a new tunnel liner around the piles, transferring the load from piles to the liner then cutting the existing piles.

The analysis also considered a simpler cut-and-cover tunneling method which would provide better access for construction of the reinforcing collar beam on the outside vault walls before cutting the proposed openings. Given the property and community impacts cut-and-cover is not considered a viable approach.

Construction and Sequencing

Given the physical constraints the staging and sequencing are critical activities. The study team developed an initial sequencing plan that assumed specific locations for shaft locations.

For passageway mined tunneling, a shaft would be excavated along G Street NW. Construction could be staged from a constrained area along the north side of G Street between 7th and 8th Streets.

Tunneling would advance from the G Street shaft. Construction of both station vaults most likely utilized soldier piles and wood lagging without tie-backs for temporary support which most likely was left in place. Near the 7th Street station vault, the mining would encounter existing underpinning and the previous temporary support. This support may be able to be used as a basis of support for the passageway construction. Structural loads would be transferred onto/around the proposed tunnel liner, and piles would be cut. Near the G Street station vault, the mining would encounter the previous temporary support.

Before penetrating the existing vault walls, structural support would be developed around the proposed openings by means of continuous collar beams, pipe arches, or some other method. Analysis showed structural loads would be transferred onto and around the proposed collar beam/pipe arches in the permanent condition. However, no structural analysis was done to determine adequate pre-loading methods for vault stability during construction.

New waterproofing would be lapped with the existing bentonite waterproofing to provide a watertight structure.

Key Questions

Constructing a passageway under historic buildings and cutting openings in the station vault walls introduces significant complexities that WMATA has not encountered before. Respondents must demonstrate successful completion of similar projects and describe the innovative design and evaluation techniques used for those projects. WMATA is looking for specific methods for quantifying different project risks and critical thresholds (such as minimum allowed displacement of adjacent buildings) and how those risks were tracked through project execution.

The most significant question relates to the construction means and methods for the passageway and vault walls. A mined tunnel approach would seek to minimize impacts to existing buildings and surface conditions. WMATA has identified the following risks associated with project execution.

- Maintaining the structural integrity of the station, when cutting through the structural rib support of the station vault walls, and excavating for the shaft and passageway.
- Ground settlement of the historic buildings during the mining operations.
- Redistribution of building loads during mining operation (can building loads be redistributed around a tunnel liner using the existing piles?).

Metro is requesting Respondent input on:

- Overall project feasibility and recommended approach to project delivery
- Review and comment on structural assessment done as part of the Gallery Place-Chinatown Passageway study
- Suggest we prompt the contracting community to tell us whether mining is possible and whether cut and cover would likely lead to a more successful project.
- Recommendations on design and construction approaches to project execution.
 - Is mining possible in this location?
 - Would cut and cover most likely lead to a more successful project?
- Illustrate construction means and methods based on recommendations on design and construction approaches (bullet above).
 - Building the passageway
 - Supporting vault walls during both construction and the permanent condition
 - Supporting buildings above and adjacent to the construction area
- Detailed identification of risks and recommended ways to mitigate them
- Waterproofing approach
- Order of magnitude project costs (complete Appendix D Cost Range Form)
- Project implementation schedule
- Detailed information on past relevant project experience for similar projects in this type of environment, including brief project descriptions. Was the project on schedule and on budget? What were the risks and how were they mitigated? What were the lessons learned?

Requirements

The Gallery Place-Chinatown Station passageway must be constructed with no adverse impact to the entire station or the surrounding buildings during construction and in its permanent condition. Construction would be limited to the work windows identified below. Respondents must submit their project approach for constructing the passageway including overall project feasibility and addressing the specific questions above.

The rail system operates from 5 AM to 12:30 AM. Access for work in stations and above the tracks during non-revenue hours is a small work window of 3 to 4 hours nightly. Weekend

station closures with single tracking, approximately 48 to 50 hour duration, may be a possibility. The work hour sequencing solution proposed may be used to develop a future RFP for the passageway construction.

Instructions to Respondents

This is a Request for Information (RFI), not an order. This document shall not be construed as a request or authorization to perform work at WMATA's expense. Any work performed by a Respondent will be at their own discretion. This RFI does not represent a commitment to purchase or lease. Submission of a response constitutes an acknowledgement that the Respondent has read and agrees to be bound by such terms.

This is not a request for offers but only a request for information. A determination not to issue a solicitation based upon responses to this notice is solely within the discretion of WMATA.

Point of Contact

All communication with WMATA must be directed to the single Point of Contact for this project, as follows:

Norie Calvert, Office of Procurement & Materials (202) 962-1678 nacalvert@wmata.com

Submission of Responses

The information received in response to this RFI will be used by WMATA to determine the next steps to move forward with the passageway project. WMATA is seeking responses with sufficient detail to address project engineering feasibility and constructability that helps WMATA evaluate project viability and project implementation approach. WMATA will pay a stipend of \$150,000 for up to five acceptable industry responses to this RFI.

On **Monday, April 9, 2018 the first Respondent submittal is due by 3:00 pm**. The submittal shall be in the form of a brief memorandum, no longer than five pages. Content shall include information on the Proposer's past experience designing and constructing projects with similar characteristics, and approaches to manage risks and confirm feasibility of the project.

On **Monday, March 26, 2018 at 10:00 am WMATA will host an information session** to provide further information to interested parties and discuss questions. Please contact Norie Calvert via email of your plans to attend along with a list of attendees. WMATA will post any changes to the schedule on WMATA's Procurement & Contracting webpage at:

https://www.wmata.com/business/procurement/solicitations/index

WMATA will evaluate the first submittals and select up to five Respondents to prepare a followon, more detailed second submittal, and will provide a stipend of \$150,000 for acceptable second submittals.

On **Monday, April 16, 2018** WMATA will notify Respondents of selection to receive the stipend and prepare a second submittal.

For selected Respondents, the second submittal is due on Wednesday, June 6, 2018 by 3:00 pm. It will include more detailed documentation and presentation materials addressing the information requested under the "Key Questions" section above.

If the RFI responses indicate construction of the passageway is feasible, then next steps would include WMATA preparing bridging documents in preparation for a design-build project implementation.

This RFI remains the property of WMATA at all times, and must be returned by the Respondent upon request. Document recipients not submitting a response must immediately return all printed, graphic and electronic documentation to the point of contact.

All responses, once delivered, become the property of WMATA.

Questions may be directed to nacalvert@wmata.com no later than close of business (5:00 pm), Friday, May 25, 2018.

Appendices

- **Appendix A Conceptual Drawings**
- **Appendix B Selected Gallery Place-Chinatown Station As-Built Drawings**
- **Appendix C Gallery Place-Chinatown Station Structural Assessment**
- Appendix D Cost Range Form