New Orleans Historic City, Modern Public Transportation Challenges

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The Regional Transit Authority has contracted with Veolia Transportation Services, Inc. under a Delegated Management contract to perform all activities for the New Orleans Regional Transit Authority (NORTA). The Federal Transit Administration (FTA) has contracted with Stantec Consulting Services Inc. to provide Program Management Oversight Contractor (PMOC) services for the NORTA Loyola Avenue Streetcar Loop Project.

INTRODUCTION

The New Orleans Regional Transit Authority (NORTA) provides public transit services for the greater New Orleans region. At present, the NORTA system includes three streetcar lines, 32 bus routes, and special Para-transit services for the disabled. The service covers 14,000 miles each day and services almost 12 million riders every year. The US Department of Transportation awarded a Transit Investment Generating Economic Recovery (TIGER-I) grant of $45M to NORTA to expand their streetcar system adding the Loyola Avenue Streetcar Loop. The project measures just under one mile of double track service between the Union Passenger Terminal (UPT) down Loyola Avenue to Canal Street. The project opened for revenue service on January 28, 2013.

This paper will explore the range of PMOC and Engineering/Construction Management (PM/CM) programmatic methods and solutions deployed at various project stages to successfully deliver this vital project. The core PMOC and PM/CM solutions discussed in this paper will be related to: program management oversight, system safety and security certification, design, construction, coordination with jurisdictional authorities, and implementation of unique engineering solutions to address critical project interfaces

New Orleans is a historic city with infrastructure dating back to the 1900s. Managing the interfaces between existing (historic) and new infrastructure presented a unique range of project challenges, requiring the integration of a blend of Program Management Oversight, Engineering and Construction, and project contractual solutions. In order to meet the public demand for safe, efficient, and cost effective mass transportation solutions, many municipalities are considering implementation of Modern Streetcar Systems; this trend is projected to increase as competition for limited federal funding also increases. This paper presents lessons learned with practical applications from the Loyola Avenue Streetcar Loop Project, which can be readily applied to other current or future transit programs. The objective is to ensure that public transit projects achieve the highest levels of safety, efficiency, and cost effectiveness for the dollars invested.

Overview Project PM/CM

Veolia Transportation Services Inc. in service to the Regional Transit Authority provided both Program and Project Managers for the Loyola Avenue project. NORTA contracted the services of CM Plus, a team of sub consultants to perform Construction Management Services. The CM Plus team performed the following tasks including: document control, public relations, environmental, materials monitoring, field engineering, inspectors to ensure and monitor project quality as the project was constructed.

The PM/CM group monitored and audited contractor quality control activities, fabrication work, and materials/equipment supplied by others. Construction oversight procedures were meant as a guideline to effectively manage the overall quality of the Contractor, their sub-contractors, and suppliers. As the project progressed, modifications were made and documented

through the document control process. Information and experience gained through the application of these procedures were used to more efficiently perform the work and assure the overall quality of the project. The Construction Management group provided aid in design, schedule, procurement, and construction implementation issues as the project progressed. The objective of the Construction/Quality Management System was to satisfy all project requirements in a cost effective manner, and to continuously improve the methods used to deliver the project and to ensure that all Federal Transit Administration (FTA), NORTA and other stakeholder requirements were effectively performed, monitored and documented to deliver a compliant and safe transit system.

Quality Assurance (QA) inspections and audits were performed to verify that the contractor had a quality control system in place that met the industry standard requirements for Quality Control and adhered to the project plans and specifications. The Contractor Quality Control Plan and Procedures were reviewed and approved by NORTA and the Construction Management team. Periodic audits of the Quality system were performed to ensure continued conformance. Audits of the certified payrolls and personal interviews were performed to ensure labor conformance (Davis Bacon Act). All materials utilized throughout the project were submitted and approved by the Construction Management Team to ensure conformance with American Recovery and Reinvestment Act (ARRA) and the Project plans and specifications. All work and materials were documented in various forms. Requests for Information (RFIs) and submittals were transmitted through the Construction Management team, reviewed and returned to the Contractor for clarity and quality assurance.

Construction Management oversight in the form of field personnel were utilized to ensure adherence to the Contract Documents, submittals and RFIs, and daily documentation of the field activities. Weekly meetings involving NORTA, the Construction Management team, Construction Contractor and all sub-contractors to discuss upcoming activities proved vital in the progression and schedule of work. The meeting included review of the contractor's three week look-ahead schedule, updated and revised weekly, which mimicked the approved schedule update that was submitted and approved monthly. The meeting agenda included review of Public Relations input from the Construction Management team and the Construction Contractors team on progress and issues with stakeholders along the corridor. The Public Relations teams were to inform the stakeholders on the project progress and the various phases of construction and to address any public perception issues. A Hotline was created to allow the public a direct venue to present all concerns and questions throughout the duration of the project. The meeting allowed the Construction Management team's Materials Management Group to comment on soil conditions, potential historical anomalies, along with noise and vibration monitoring results to ensure the Contractors was in conformance with all City and State ordinances as they applied in the City of New Orleans. Once the agenda items were covered, all stakeholders had an opportunity to air all issues regardless of how minor. This allowed all stakeholders an opportunity to participate in the project, which proved to be an effective and proactive method to resolve conflicts or potential conflicts, including identification of possible non-conformance work or non-compliance to the contract. This provided the team with the opportunity to resolve any conflicts or potential conflicts before they impacted the project, and allowed greater opportunity to implement formal corrective measures at earlier project stages.

Overview Project Management Oversight Contractor (PMOC)

This section will provide a high level overview of the PMOC program background, processes, and oversight principles. Additionally, this section describes how the PMOC functioned as an integral component of the FTA Project Management Oversight of the Loyola Avenue Streetcar Loop Project. A key takeaway of this section is a fuller understanding of the PMOC role and its implementation relative federal regulatory policy relevant to administration of FTA funding programs. The objective of the FTA's funding program oversight and administration is to maximize the return on Federal investment in transit. (Adm12)[i]The objective of FTA regulatory oversight of capital projects receiving federal funds is to protect the taxpayer investment by ensuring that projects are properly planned prior to granting of award. This is accomplished utilizing PMOCs to assist the agency in overseeing the agencies funding programs. The Project Management Oversight Program establishes formal responsibilities for Project Management and establishes the need for the recipient to demonstrate their capacity and capability to perform prior to progressing through successive project phases.

The Loyola Avenue Streetcar Loop Project was evaluated to ensure that it met requirements of the FTA Project Management Oversight regulations. NORTA was required to demonstrate their project management capabilities and capacity in a comprehensive Project

Management Plan (PMP). The PMP formally detailed NORTA's approach to carrying out the project: cost, budget, and interfaces with the FTA and PMOC. The FTA PMP requirement is designed to verify that NORTA has all the relevant capabilities and resources in place to ensure successful management of the project using available best practices.

The PMOC role in Project Management Oversight of the Loyola Avenue Streetcar Loop Project was primarily to provide ongoing assessment and evaluation of the projects progress to schedule, budget, and project plans and specifications. The ongoing PMOC assessment of the project assisted the FTA in their oversight role, ensuring NORTA's management capacity and capability to deliver the project within acceptable risk levels.

As the NORTA project progressed into the construction phase, the following key drivers became apparent: differing site conditions, utility coordination, special trackwork, and special event impacts to schedule. The noted project drivers necessitated implementation of a range of dynamic decision making processes and tools for both PMOC and PM/CM project management functions, in order to efficiently react to changing conditions. The project team's ability to effectively and efficiently react to changing conditions affecting key project drivers was fundamental to the ultimate success or failure of the project. The remainder of this paper will present the application, implementation, and outcomes resulting from applying a systematic approach to addressing the key project drivers encountered on the Loyola Avenue Streetcar Loop Project.

MANAGING KEY PROJECT DRIVERS

Differing Site Conditions

Differing site conditions occur when conditions encountered at the construction site differ materially from those indicated in the contract, or when the conditions encountered at the site differ materially from those normally encountered. The Project Management Oversight role is to evaluate the NORTA project team relevant to the effectiveness and efficiency of their response to differing site conditions. The project team response is monitored relevant to cost and schedule impacts and regulatory requirements. Project Oversight was implemented as an integral component of the NORTA streetcar project, assisting the FTA by communicating project status information and ensuring their access to the most current project data in order to exorcise their stewardship role. The PMP is the primary oversight tool utilized by the PMOC to qualitatively assess the project team's performance to established standards and best practices.

Management of differing site conditions has direct impact on project cost. Project cost, budget, and contingency were monitored by the PMOC as a project status reporting item during both monthly and quarterly meetings. Differing site conditions also resulted in adverse schedule impacts and inefficiencies. The NORTA project team was forced to implement multiple simultaneous work-around scenarios due to an unforeseeable number of differing site conditions. Additionally, project schedule was monitored by the PMOC as a project status reporting item during monthly and quarterly meetings. Due to a combination of factors, including differing site conditions and special trackwork production delays, the project substantial completion date was pushed back from June 30, 2012 to December 27, 2012. Potential project overrun of either cost and/or schedule were continuously evaluated to ensure that the project remained in compliance with the Grant Agreement and Environmental Assessment (EA) policy.

Utility Coordination

Utility coordination for the NORTA Streetcar Loop was another key project driver. The PMOC monitored the project team's ongoing coordination with the following project stakeholders as a critical project oversight function: Entergy electric and gas, New Orleans Sewage and Water Board, Environmental protection, and Level 3, AT&T and Cox Communications providers. Utility coordination issues were continuously monitored to evaluate any adverse impact to project cost, schedule, and scope. Status of these project elements were reported during monthly and quarterly project status meetings. Utility locations and coordination challenges resulted in critical on the fly reengineering of bridge structures which were originally designed to span the historic water drainage channel (which dated back to 1946). Due to unforeseen soil conditions, boring to locate critical utilities to place bridge piers at Girod Street could not be located. This necessitated an alternative redesign utilizing support slabs to span the canal instead of bridge spans. This resulted in major project cost variance which necessitated budget adjustments.

The New Orleans UPT to Canal Street extension experienced 133 (one hundred thirty three) of those differing site conditions. These ranged from cypress tree

stumps the size of a small passenger vehicle to unknown utility ductbanks which were neither on the construction drawings nor marked by Louisiana one call utility locate services. Other various differing site conditions included an abandoned cistern which archeologists explored in depth for any further signs of significant findings, and two abandoned petroleum tanks along the alignment which needed to be mitigated through our Materials Management Group (MMG) and the Louisiana Department of Environmental Quality (LDEQ). Many of these differing site conditions may be attributed to the fact that New Orleans is one of the oldest cities in the United States. In addition, severe storms which mostly encroach from the Gulf of Mexico complicate the matter. The impact of Hurricane Katrina in August of 2005 caused massive flooding and destruction of property was felt in many other ways. Many records and documents were lost in the storm which would have aided in the design and impacted the accuracy of the location of underground utilities.

New Orleans has a deep history which has experienced many changes over the decades. One of the original designs for commerce was the use of manmade canals. During the construction of the Loyola streetcar alignment, the canal located in the heart of the Central Business District (CBD) interfaced with many of the construction components of this project. The existing canal continues to be utilized by City of New Orleans Sewerage and Water Board for drainage. The canal is covered with a roof and runs along the neutral ground (median strip) which divides the traffic lanes of Loyola Avenue at times veering out into the street lanes. At several locations where construction interfaced with the canal a driven pile and grade beam system supporting pre-stressed concrete planks placed on bearing pads suspended over the existing canal was implemented.

The implementation of driven piles at the first bridge location proved to be extremely problematic due to a multitude of differing site conditions. Shallow traffic control wires, fiber optic lines, various other communication lines, concrete energy ductbanks, unknown pipes and a gas line all impeded the progress of this task. These obstacles were all differing site conditions since no records of them existing, or have an entirely different location. Potholing with a vacuum truck was performed at the job site as a noninvasive method of discovery to allow for pile driving operations. Once all the information was gathered, repositioning, re-spacing and modifications to the pile driving efforts were implemented to accommodate the protection of that portion of the Canal which the streetcar alignment traversed. This operation exceeded the base line schedule by over two months. Recognizing the loss of time during this period, the construction contractor initiated several other work activities to minimize the overall schedule impact due to the extended amount of time utilized for the first bridging segment. Since this was the first of four locations where the streetcar alignment traversed the existing canal, the construction management team with the assistance of the design contractor recognized a need for change in design. NORTA's design contractor, worked on a design change incorporating a haunched concrete slab replacing the invasive pile driving which ultimately prevented a drastic slip in schedule as far as this construction activity is concerned.

Another example of differing site conditions was the difficulty in locating enough space between obstacles at necessary locations to excavate a pit to a 25 foot depth to perform a jack and bore pit operation to install a new water main under the Sewage and Water Board canal. The forty eight inch diameter casing was to be installed beneath the existing Canal to house a new thirty inch waterline at three different locations along the alignment. Once the first jacking pit was stabilized, and fiber and unknown utilities identified an attempt was made to install the casing. The soils at the depth of the jack and bore were soft and unstable such that the weight of the casing drove the tip downward. The jack and bore operations had to be abandoned and the water line and an alternate means to bring the water line across Loyola Avenue were required. The only logical substitute was the conventional cut and cover method with the waterline crossing the canal through the roof of the canal in a reinforced trough. A trough design was originally disproved by the New Orleans Sewage and Water Board in final engineering but became necessary due to the condition of the soil under the canal.

As previously mentioned, with a city as old as New Orleans, many abandoned and mixed and matched infrastructures, loss of records due to Hurricane Katrina, utility coordination and communication with utilities were paramount. NORTA is an agent of the State of Louisiana, not the City of New Orleans, therefore communications were, at best, labored and time consuming since this was not a familiar road with the exception of Capital projects that include all stakeholders, including NORTA. The situation with utilities was recognized early on, but the City of New Orleans provided an avenue in which to streamline communication efforts. The Deputy Mayor for facilities infrastructure and community development assigned a special assistant who reported directly to the Deputy Mayor himself to expedite communications and facilitate the resolution of issues with various City agencies as they related to the new streetcar extension

along Loyola Avenue. The new alignment for construction through the CBD impacted the Civil Court House, City Hall, Homeland Security, some of the largest office complexes in the City, and major hotels that are all located on Loyola Avenue.

Having a direct line of communications with utility companies was paramount to the successful coordination of utility interfaces. The special assistance provided by the Deputy Major was equally important to keeping the project moving forward. Knowing who to communicate with was key; for example, drainage lines less than thirty inches belong to the Department of Public Works. Drainage lines thirty inches and larger in diameter belong to the Sewerage and Water Board. In major construction projects, time is a valuable commodity which is easily lost. Knowing who to communicate with and when resulted in valuable time savings. The project team needed to be able to efficiently communicate with and accommodate, as necessary, all stakeholders and interested parties such as the DDD (Downtown Development District) PKW (Parks and Parkways) who maintained and controlled the neutral ground which was heavily impacted during construction. Another example of efficiencies gained over the life of the project was the ability to respond to unexpected site conditions. For example, two abandoned petroleum tanks were discovered at Poydras and Loyola. Utilizing experience gained from other sites, the tank evaluation and removal was completed in only two days, while achieving full compliance with NEPA regulatory standards.

Installation of piers for bridge structures is an example of a major utility location and coordination challenge encountered by the project team. Piers were needed for bridge structures that would span the historic water drainage channel (dating back to 1946). Due to unforeseen soil conditions, boring to locate critical utilities obstructing the placement of bridge piers at the Tulane Avenue site could not be located. Attempts to locate the underground utilities to allow jack and boring resulted in six weeks of project delays. It was determined that the risk of drilling the holes for bridge piers without positive identification of adjacent underground utilities was unacceptable. The project team responded to this unforeseen condition by implementing an on-the-fly redesign changing from bridge structures to support slabs in order to span canal locations. This resulted in major variation to project cost, scope, and schedule parameters necessitating the implementation of a systematic predetermined regiment of Project Oversight and PM/CM corrective measures.

The project team's capacity and capability to efficiently respond to such unforeseen circumstances is directly related to the soundness of NORTA's investment into Risk Planning, which is required as a function of the PMP. Risk Planning ensures that NORTA's management processes were established based on a systematic decision making principle driven body of knowledge, relevant to risk-informed project management. NORTA's PMP provides the tools needed to manage project cost, scope, and schedule elements scaled to the Loyola Avenue Streetcar Loop specific level of project complexity and risk.

Special Trackwork

[ii]49 CFR Part 661 - Buy America Requirements requires that no funds may be obligated by FTA for a project unless all iron, steel, and manufactured products used in the project are produced in the United States. The steel and iron requirements apply to all construction materials made primarily of steel or iron and used in infrastructure projects such as transit or maintenance facilities, rail lines, and bridges. These items include, but are not limited to, structural steel or iron, steel or iron beams and columns, running rail and contact rail. These requirements do not apply to steel or iron used as components or subcomponents of other manufactured products or rolling stock, or to bimetallic power rail incorporating steel or iron components. The Buy America Requirement reduced NORTA's procurement of special trackwork to a sole source purchase contract. Nortrack was the sole producer in the nation meeting regulatory requirements. Due to their production backlogs, a 60 day delay was imposed on NORTA; the situation was further exacerbated by the fact that NORTA utilized a non-standard track gauge, which requires the retooling of equipment to specifically run NORTA's special trackwork. This situation presented a host of oversight and PM/CM challenges which affected project metrics and resulted in project modifications including: schedule, cost, and scope changes. Ultimately the project scope was amended to remove the Rampart section of the alignment form the original startup phase to a post Loyola Avenue Streetcar Loop construction phase. The baseline schedule was re-scoped on June 18, 2012. NORTA submitted a revised project cost to the FTA, and committed additional local funds to cover the amended cost. From a PMOC perspective these changes had to be fully vetted based on compliance to funding grant agreement requirements, which were done successfully.

Due to the short window from award of the construction contract to the anticipated project completion the NORTA advance procured 30" and 36" fresh water valves, non-standard length traffic arms and all special trackwork for the project. Both the freshwater valves and traffic mast arms procurement went as planned and materials were available and on-site for the construction contractor when needed in the project phasing. The special trackwork procurement presented challenges that caused delays in schedule. Truly, two separate issues drove the delay in Nortrack ability to manufacture the special track work; availability of supplies and failure of casings at the foundry. AR-400, the metal specified by NORTA and required for the switch points, was not available in a timely manner to a US supplier in the quantities needed. In addition to martial availability, the project has two turn radii at the intersection of the existing Canal Street line and the new Loyola line of less than four hundred feet that required the use of number four (4) track frogs. Castings failures at the foundry during numerous attempts to pour the frogs resulted in the need to re-engineer the castings.

Schedule delay in the delivery of special trackwork impacted the construction contractor requiring them to re-sequence work activities in order to keep subcontractors who were already on site installing tangent track working. Task re-sequencing enabled the contractor to work around locations where special track work was to be installed. Task re-phasing required a substantial amount of coordination between all project stakeholders in order to minimize delay and maximize production, while reducing schedule slippage as much as possible.

Systems Integrated Test

This section describes both PMOC and PM/CM activities performed to verify the Loyola Avenue Streetcar Loop Project's readiness to enter into revenue operations. The validation process consisted of a predefined set of regulatory standards directing the review, analysis, recommendation procedures and reporting requirements for validating a system as safe.

Integrated Testing is a key part of the System Safety and Security Certification process as it ensures the effective interface of the project elements and that these same project elements comply with established safety and security performance requirements. Integrated Testing also ensures that all system elements operate/function seamlessly as an integrated system. On the Loyola Avenue Streetcar Loop Project, Safety and Security Certification activities related to the integrated test program began at the earliest stages of construction with the quality assurance oversight of the track and overhead catenary system installation, along with constant monitoring and documentation of construction activities as part of the testing and safety certification process. This process provided the documentation needed to certify the system as safe to operate streetcars.

NORTA implemented a detailed System Safety and Security Certification Program, as defined in the Safety and Security Management Plan (SSMP) and the Safety and Security Certification Plan (SSCP). The SSCP documents that all elements of the SSMP, and all safety and security requirements, comply with NORTA's acceptance criteria. It also documents that all appropriate parties have thoroughly reviewed the safety and security content of the plans, procedures, and training materials. Although managed as separate programs, the System Safety and Security Certification Program and the Integrated Test Program complement and reinforce each other, especially as various safety and security related tests and Readiness Drills must be coordinated.

For several certifiable project elements, Integrated Tests provide the final verification that the system elements function safely, that the project specifications and criteria are actually implemented, and that all systems and their associated components operate and function as intended. As the test program proceeded, the Safety and Security Certification Review Team (SSCRT) was responsible to verify that the system is safe, secure, and that all known safety-related tests have been successfully completed. Additionally, the SSCRT team is responsible to ensure that all identified hazards have been eliminated or mitigated to an acceptable level.

Upon substantial completion, initial System Safety Certification testing began with dynamic envelop clearance testing. This consisted of slowly pulling a streetcar along the new alignment (non-powered). Temporary feeler gauges distributed on the exterior of the streetcar provided visual aid in proceeding on its maiden voyage allowing the feeler gauges to gently fall off their magnetic mounts if dynamic envelop issues arose. Several clearance issues arose. The design conflicts proved to be mostly curb related, and since clearance testing is the first priority of the initial streetcar run, ample time remained to correct these issues prior to further testing. As a temporary measure a power feed from the existing White Street power substation was connected to breakers at Cleveland Street to allow construction to continue on the half grand union installation at Canal Street without impacting streetcar operations at Canal Street.

Integrated testing for the Loyola Avenue Streetcar Loop project proceeded for several months prior to final commissioning of the system. All switches were tested and certified and then integrated with the signal system utilizing a Global Positioning System (GPS) unit in each streetcar allowing the streetcar to queue its own signal at both UPT (Union Passenger Terminal) and at Canal Street. Various electrical load testing, loop and continuity testing, searching for electrical ground's, and termination switch testing all conformed to FTA and NORTA standards.

Special Events

Tourism has long been a dominant part of the New Orleans economy. The French Quarter is an international icon and tourist destination attracting over two million visitors per year. The CBD is home to major venues such as the Mercedes-Benz Superdome, Ernest N. Morial Convention Center, New Orleans Arena, the National World War II museum and a concentration of hotels. Loyola Avenue is one the largest arteries in the CBD moving vehicular traffic in and out of the corridor.

The construction zone was in the center of these activities that New Orleans is famous for. Mardi Gras parades progressed along the corridor. New Orleans Saints and Hornets fans passed through the construction zone going to and from home games in the Mercedes-Benz Superdome and New Orleans Arena. The 2012 Men's NCAA final four was hosted at the New Orleans arena. System Safety Certification was conducted as the area was preparing for the 2012 Super Bowl. All of these events created their own contractual challenges as each presented new security and safety concerns. By understanding that New Orleans is a tourist destination in the planning and scheduling phase of the project, the contractor was able to make adjustments to project schedule as the construction progressed to accommodate all the events while reducing impact to schedule and phasing.

All of these events took extra coordination with the New Orleans police department to ensure that the proper details were arranged and available for each of the special events in the area to both make sure that pedestrian traffic remained in designated safe route through construction and also manage the increased numbers of vehicles in the area.

Lessons Learned

[iii]The FTA lessons learned program was implemented to document development and implementation of transit projects in order to increase the effectiveness of transit capital expenditures. The ultimate objective is to increase the transit industry body of knowledge through shared experience and lessons learned on major capital transit projects. The lessons learned program is an integral part of the PMOC function. Lessons learned spanned the entire Loyola Avenue Streetcar Loop project life-cycle to include: Alternative Analysis, Preliminary Engineering, Final Design, Construction, Startup and Commissioning, and Revenue Operations. Additionally, lessons learned covers management of the following key project functions: Cost, PM/CM, Schedule, and Scope.

Special trackwork for the Loyola Avenue Streetcar Loop project provides an ideal lessons learned example because of its impact on all four major program categories. Project cost increased from $49,358,507 to $52,729,864 due to a combination of issues including de-scoping of the Rampart portion of the project due to delayed delivery of special trackwork. The PM/CM incurred additional cost to plan and implement de-scoping of the Rampart portion of the project. The project schedule had to be re-baselined to reflect a 60 day delay, and the de-scoping of Rampart street section. Lastly, de-scoping of the Rampart section resulted in modification to the project scope.

Additional lessons learned relative to the Loyola Avenue Streetcar Loop Project consist of the following: Authority furnished material: ensure all long lead items are procured in advance to meet the project schedule; start the procurement process early and allow enough time in the schedule. Utility agreements: ensure participation of all utility stakeholders as early as possible in the project lifecycle. Memorandums of Understanding with impacted municipalities should be developed to ensure that a single point of contact having appropriate authority is provided to manage the municipal/project utility interface. Geotechnical assessment: ensure that a thorough geotechnical study at all points of excavation is performed to evaluate all soil conditions which could potentially impact constructability.

SOURCES SITED

[i] (FTA PMO)
[ii] (40CFR Part 661 Buy america Requirements | Title 49 - Transportaion | Code of Federal Regulations| LII)
[iii] (Learned)