



West Virginia Purchasing Division

2019 Washington Street, East
Charleston, WV 25305
Telephone: 304-558-2306
General Fax: 304-558-6026
Bid Fax: 304-558-3970

The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

Header 02

General Information

Contact

Default Values

Discount

Document Information

Procurement Folder: 310619

Procurement Type: Central Master Agreement

Vendor ID: VS0000012743

Legal Name: TRC Engineering Services, LLC

Alias/DBA:

Total Bid: \$108,020.00

Response Date: 05/04/2017

Response Time: 12:14

SO Doc Code: CRFQ

SO Dept: 0805

SO Doc ID: PTR1700000006

Published Date: 4/12/17

Close Date: 5/4/17

Close Time: 13:30

Status: Closed

Solicitation Description: Production Line Vehicle Inspection Services

Total of Header Attachments: 2

Total of All Attachments: 2



Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

**State of West Virginia
 Solicitation Response**

Proc Folder : 310619
Solicitation Description : Production Line Vehicle Inspection Services
Proc Type : Central Master Agreement

| Date issued | Solicitation Closes | Solicitation Response | Version |
|-------------|------------------------|------------------------------|---------|
| | 2017-05-04 13:30:00 | SR 0805 ESR05041700000005346 | 1 |

| VENDOR |
|---|
| VS0000012743 TRC Engineering Services, LLC |

Solicitation Number: CRFQ 0805 PTR1700000006

Total Bid : \$108,020.00 **Response Date:** 2017-05-04 **Response Time:** 12:14:47

Comments:

FOR INFORMATION CONTACT THE BUYER
 Melissa Pettrey
 (304) 558-0094
 melissa.k.pettrey@wv.gov

| | | |
|--------------------------|---------------|-------------|
| Signature on File | FEIN # | DATE |
|--------------------------|---------------|-------------|

All offers subject to all terms and conditions contained in this solicitation

| Line | Comm Ln Desc | Qty | Unit Issue | Unit Price | Ln Total Or Contract Amount |
|------|---|-----|------------|------------|-----------------------------|
| 1 | Production Line Vehicle Inspection Services | | | | \$108,020.00 |

| Comm Code | Manufacturer | Specification | Model # |
|-----------|--------------|---------------|---------|
| 25101502 | | | |

| | |
|-------------------------------|--|
| Extended Description : | Production Line Vehicle Inspection Services for vans and buses |
|-------------------------------|--|

REQUEST FOR QUOTATIONS Production Line Vehicle Inspections



**Due: May 4, 2017
1:30 PM**



TRC ENGINEERING SERVICES LLC
2200 Winter Springs Blvd.
Suite 106-344
Oviedo, Florida 32765
P: (407) 977-4500
F: (407) 977-7333
tranrc@earthlink.net

PRESENTED TO:
Ms. Melissa Pettrey
West Virginia Division of Public Transit
2019 Washington Street, East
Charleston, WV 25305
F: (304) 558-4115
Melissa.K.Pettrey@wv.gov



May 3, 2017

Ms. Melissa Pettrey
West Virginia Division of Public Transit
2019 Washington Street, East
Charleston, WV 25305
F: (304) 558-4115
Melissa.K.Pettrey@wv.gov

Re: Request for Quotations, Transit Bus Line Inspection Services

Dear Ms. Pettrey:

TRC Engineering Services, LLC (formerly branded as Transit Resource Center) is pleased to respond to the West Virginia Division of Public Transit's request for quotations for the Production Line Vehicle Inspection Services, to provide onsite representation to oversee transit bus production in the bus manufacturing facility(s) under an open-end contract with the Division of Public Transit.

TRC is a nationwide consulting organization specializing in transit industry vehicle engineering and maintenance consulting services. We are now in our 26th year of business and have become a leading company in the U.S. that provides transit vehicle engineering support services, including in-plant quality assurance inspections. In addition, our nationally known staff is recognized for its expertise in transit vehicle technology, manufacturing systems, and transit vehicle maintenance.

Over the past 26 years, TRC has worked successfully with virtually every bus manufacturer that provides transit buses to the North American market. Our nationally known inspection team is the finest in the nation and has worked with transit agencies of all sizes, including the Division of Public Transit.

TRC routinely performs Pre-Award and Post-Delivery Buy America audits in compliance with Federal Transit Administration (FTA) regulations governing audits of transit rolling stock purchases as detailed in 49 CFR Part 663. TRC will use our experience in this field to conduct satisfactory Buy America Audits for the Division of Public Transit, as we have done in the past.

TRC's superb management team, skilled inspectors, and an excellent reporting system are organized to provide the Division of Public Transit with the highest quality bus inspection services. Our leadership in this area has been recognized by the National Academy of

Ms. Melissa Pettrey

May 3, 2017

Page Two

Sciences, Transit Cooperative Research Program as well as by our selection as consultants to leading North American transit systems.

We look forward to the possibility of continuing our partnership with the West Virginia Division of Public Transit. Should you have any questions regarding this proposal, please contact me by phone at (407) 977-4500.

Respectfully submitted,

TRC ENGINEERING SERVICES, LLC



Edward W. Pigman
President

EWP/th

SECTION 1

Firm Identification and History



Section 1

Firm Identification and Qualifications

TRC Engineering Services, LLC (formerly branded Transit Resource Center) is a Florida corporation, with its headquarters in metropolitan Orlando, and with other offices in Colorado, Connecticut and Massachusetts. TRC is a consulting organization focused on providing technical support in bus engineering, manufacturing, and maintenance in the public transportation field.

TRC was founded in 1991 and has been in business for 26 years. TRC has a direct staff of about 38 full-time employees; the firm is also affiliated with several related companies with total employment of about 280 employees, including about 35 independent contractors.

GENERAL INFORMATION

| | |
|--|--|
| Firm name, address, telephone number and fax number. | TRC Engineering Services, LLC 2200 Winter Springs Boulevard Suite # 106-344 Oviedo, Florida 32765 (407) 977-4500 V. (407) 977-7333 F. trc@trcengineering.net www.trcengineering.net |
| Proposal Contact: | Edward W. Pigman, President (407) 977-4500 tranrc@earthlink.net |
| Type of Organization: | Corporation (Not DBE Certified) |



FIRM HISTORY

TRC is a consulting organization focused on providing technical support in bus engineering, manufacturing, and maintenance in the public transportation field. We have been a leader in transit vehicle engineering, quality assurance and maintenance consulting services for over 25 years.

TRC was recognized for its outstanding leadership role in the field of bus technology and bus maintenance practices with the award of a prestigious contract by the National Academy of Sciences Transit Cooperative Research Board (TCRP E-5). This contract is to evaluate best maintenance practices among North American bus systems. TRC is also a subcontractor to West Virginia University on a second prestigious contract to assess hybrid-electric bus technology (TCRP C-15).

TRC is known for its vigorous and technically advanced maintenance auditing practice. In this capacity TRC conducts physical inspections of client bus fleets to determine overall fleet conditions and the effectiveness of existing maintenance programs. TRC recently completed such audits for the Capital District Transportation Authority (New York), the Potomac & Rappahannock Transportation Commission (Virginia), San Mateo County Transit District (California), and City of Glendale, CA.

For bus fleets already in operation, maintenance of these capital assets is vital to the long-term economic health of any transit organization. To this end, TRC offers a wide array of maintenance consulting services to our clients. TRC is well regarded, for example, in the field of alternative bus fuels and related storage technology. The firm has completed evaluations of alternative fuels strategies in the Atlanta region, and for the Humboldt Transit Authority and Imperial Valley Transit in California. Recently TRC, in association with West Virginia University, conducted a detailed study of the emissions of low-sulfur diesel fuels in transit buses for Westchester County DOT (suburban New York City).

TRC's maintenance consulting practice often focuses on the people who staff bus maintenance departments. TRC evaluates the credentials of mechanics and maintenance foreman, and we design programs to improve their technical and administrative skills. Sometimes TRC serves as a recruiting organization to help clients find qualified maintenance managers (Portland, ME; New Haven, CT). TRC has helped clients review and evaluate vendor proposals for fleet maintenance programs in Santa Maria, CA, and Bridgeport, CT. Bus maintenance is best conducted in clear well-designed spaces organized for this purpose. TRC acts as advisors on site selection and repair shop design (New Haven, CT; San Luis Obispo; Santa Maria, CA).

As companion pieces to our maintenance audits, TRC often prepares comprehensive maintenance plans for clients who want to improve the quality of maintenance on their bus fleets (Phoenix, AZ; New Haven, CT).

TRC provides consultation on a host of maintenance technical issues that create problems for our clients. TRC has conducted investigations of bus fires (Philadelphia; PRTC, Montgomery



County, MD), malfunctioning fareboxes (Tempe, AZ), premature engine failures (Bridgeport, CT), excessive brake wear (HSTC), and bus frame-cracks (New Jersey Transit), bus re-powering projects (San Diego County Transit).

TRC routinely assists clients in the development of technical specifications for new bus fleets. For example, TRC recently developed specifications for several different models of buses for Vancouver, British Columbia, CATA in State College, PA., and for Illinois DOT's statewide vehicle purchases. TRC is currently involved in an International bus specification/selection program for a large agency in Africa.

The development of bus specifications is done in preparation for soliciting bids from manufacturers. TRC often runs turn-key procurements for clients where we act as the client's agent in conducting pre-bid conferences, responding to vendor's requests for approved equals, evaluating bids, and conducting contract negotiations with the selected bus builder. We are now providing these services for CDTA Capital District Transportation Authority in Albany, NY. and Illinois DOT, as we have for many previous clients like Topeka, KS and New Haven, CT.

Once buses enter production, TRC provides ongoing technical support services to our clients through assignment of factory resident quality control inspectors who watch over every step of the bus assembly process. Senior TRC engineers provide technical guidance to the resident inspectors and help clients arbitrate problems that arise during production. TRC also has conducted scores of Buy America audits to ensure manufacturers' compliance with FTA regulations on domestic contents and final assembly. TRC has conducted such inspections on more than 18,000 new buses since the company's start in 1990. In this capacity, TRC has supported some of North America's leading transit systems, including the Toronto Transit Commission, PACE (suburban Chicago), SamTrans (suburban San Francisco), Delaware Transit Corporation, Denver RTD, Rochester, NY, Washington Metropolitan Transit Authority and numerous other agencies, both large and small.

BUS ENGINEERING

TRC has the largest bus engineering staff in private practice in North America. The firm regularly provides engineering services for new bus design, bus manufacturing, bus renovation and retrofit, alternative fuels, and fleet performance. TRC develops bus specifications for clients in preparation for the purchase of new bus fleets. We provide engineering advice during negotiations with bus manufacturers (Illinois DOT, Delaware Transit Corporation), and we provide engineering analyses on fleet defects and warranty claims (Oxnard, CA). TRC conducts engineering analyses on structural failures on buses. Recent cases involved analyses of frame cracks on New Flyer and Neoplan articulated buses, and recommendations for repairs (San Diego Transit Corp. and New Jersey Transit). TRC also investigates issues related to bus accidents and bus fires (SEPTA; SamTrans). TRC engineers provide expert witness testimony in cases involving bus performance, design and maintenance (Jacksonville, Denver).

TRC also provides services to clients in the field of alternative bus fuels and related storage technology. TRC has provided technical seminars to transit systems on the introduction of low



sulfur diesel fuels in bus fleets, and we have conducted extensive testing of emissions from low sulfur diesel fuel buses in suburban New York City (Westchester County). TRC has also evaluated alternative fuels options for transit systems looking to move away from diesel fuels.

BUS MAINTENANCE

TRC is known for its vigorous and technically advanced bus maintenance auditing practice. In this capacity, TRC conducts maintenance department evaluations involving physical inspections of client bus fleets and maintenance facilities to determine overall conditions and the effectiveness of existing maintenance programs. TRC recently completed such audits for the Capital District Transportation Authority (New York), the Potomac & Rappahannock Transportation Commission (Virginia), The Centre Area Transit Authority (CATA) in State College, PA., SamTrans in California, and the City of Phoenix, AZ.

As companion pieces to our maintenance audits, TRC often prepares comprehensive maintenance plans for clients who want to improve the quality of maintenance on their bus fleets (Phoenix, AZ; New Haven, CT).

For bus fleets already in operation, maintenance of these capital assets is vital to the long-term economic health of any transit organization.

TRC's maintenance consulting practice often focuses on the people who staff bus maintenance departments. TRC evaluates the credentials of mechanics and maintenance foreman, (Lynx, Orlando, FL) and we design programs to improve their technical and administrative skills. Sometimes, TRC serves as a recruiting organization to help clients find qualified maintenance managers (Portland, ME; New Haven, CT). We have helped clients review and evaluate vendor proposals for fleet maintenance programs in Santa Maria, CA, and Bridgeport, CT.

Bus maintenance is best carried out in well-designed, clearly lighted spaces that are created specifically for good bus maintenance practices. TRC serves as advisors to transit systems and architectural/engineering firms on the design of new and renovated bus maintenance facilities. We have assisted clients with site selection (New Haven, CT), shop design (Beaver Co, PA; Norwalk, CA), maintenance facility consolidations (Rochester, NY; Santa Maria, CA), facility planning (San Louis Obispo, CA), facility evaluations (Orlando, FL; State College, PA) and facility commissioning (Beaver Co, PA; Norwalk, CA).

TRC provides consultation on a host of technical issues for our clients. TRC has conducted investigations of bus fires (Philadelphia; PRTC), malfunctioning fareboxes (Tempe, AZ), premature engine failures (Bridgeport, CT), excessive brake wear (HSTC), and bus re-powering projects.

BUS PROCUREMENT

TRC often runs turn-key bus procurements for clients where we act as the client's agent in conducting pre-bid conferences, responding to vendor's requests for approved equals, evaluating bids, and conducting contract negotiations with the selected bus builder. We are



now providing these services for Illinois DOT, as we have for many previous clients like Topeka, KS and New Haven, CT.

Once buses enter production, TRC provides ongoing technical support services to our clients through assignment of resident quality assurance inspectors in the factories who watch over every step of the bus assembly process. Senior TRC engineers provide technical guidance to the resident inspectors and help clients arbitrate problems that arise during production. TRC also has conducted scores of Buy America audits to ensure manufacturers' compliance with FTA regulations on domestic contents and final assembly. TRC has conducted such inspections on more than 15,000 new buses since the company's start in 1990.

In this capacity, TRC has supported some of North America's leading transit systems, including the Hillsborough Transit Authority (HART), PACE (suburban Chicago), SamTrans (suburban San Francisco), Delaware Transit Corporation, Denver RTD, Rochester, NY, and numerous other agencies, both large and small.

BUS TECHNOLOGY CENTER

For the past 26 years TRC has worked successfully with virtually every bus manufacturer that provides transit buses to the North American market. Our professional staff consists of 38 engineers, managers, maintenance specialists and bus inspectors who work on bus quality assurance projects, maintenance audits, fuels and emissions studies, and Buy America audits. Our nationally known experts are the finest in the nation and have worked with transit agencies of all sizes.



SECTION 2

Key Personnel



Section 2

Key Personnel

PROPOSED PROJECT STAFFING

In carrying out a successful bus inspection project, the quality, experience, and integrity of the staff members actually assigned to the project are the keys to success. They make the difference between absolute quality results vs. average or indifferent outcomes.

TRC has assembled the finest team of bus engineering experts that can be found anywhere in the U.S. transit industry. TRC's privately owned Bus Technology Center is the largest in North America. Our bus technology center provides technical support in bus design and engineering, bus manufacturing and bus maintenance. TRC has been a leader in transit bus engineering for 26 years.

A brief biography is presented below on each of TRC's staff members who will be assigned to the Division of Public Transit's bus manufacturing project. Each of these people will play a critical role during the project. It is not TRC's practice to merely send a resident inspector into a factory and leave the inspector to manage the project alone. Many technical and engineering issues arise where the resident inspector needs technical guidance and support services. Often there is a need to hold technical discussions and review contract issues with the client project management staff. This procurement represents a significant capital investment for the Division of Public Transit. Such a purchase deserves to have a high level of competent attention from the inspection firm.

PROPOSED STAFFING LIST

| NAME | ROLE |
|------------------|---|
| Edward Pigman | Project Principal |
| Daniel Denman | Project Manager |
| Ernesto Pimental | Resident Inspector—Proterra, Greenville, NC |
| Don Wells | Resident Inspector—New Flyer, Crookston & St. Cloud, MN |
| Mike Cook | Resident Inspector—New Flyer, Anniston, AL |
| Silvio Marinelli | Resident Inspector—New Flyer, Winnipeg, MB, Canada |
| Vim Villapana | Resident Inspector—Gillig, Livermore, CA |
| Harley Roman | Resident Inspector—Volvo/NOVA, Plattsburgh, NY |



RESUME OF EDWARD W. PIGMAN, PROJECT PRINCIPAL

PROFESSIONAL EXPERIENCE

(1991 - Present) TRC Engineering Services, President

As President of TRC, Mr. Pigman is responsible for client relations and project direction for the firm's consulting practice in the fields of bus maintenance and technology as well as in strategic operations planning.

Bus Engineering, Technology, and Maintenance

Edward Pigman is the President and CEO of TRC. During the past 25 years, Mr. Pigman has led the development of TRC into a leadership position in North America in the field of bus engineering, advanced bus technology, and bus maintenance consulting.

- Under Mr. Pigman's direction, TRC has won prestigious research contracts with the National Academy of Sciences Transit Cooperative Research Program for work on best bus maintenance practices as well as a national evaluation of hybrid propulsion technology.
- Mr. Pigman directed TRC's contract with Las Vegas, Nevada for final design review, production engineering oversight and FMVSS compliance for import of the CIVIS articulated buses built in France by Irisbus. These buses are currently in BRT operations in Las Vegas. Mr. Pigman also directed TRC's engineering evaluation of CIVIS hybrid- propulsion buses for potential application in BRT service for York Region Transit in suburban Toronto.
- Mr. Pigman is currently directing the FMVSS and Buy America compliance project for MASATS doors and wheelchair lifts for the US market.
- Under a contract with the City of Tempe, AZ, Mr. Pigman directed TRC's engineering oversight of the production of 32 battery-electric buses being designed and built by Advanced Vehicle Systems (AVS) in Chattanooga, TN. When AVS faltered in their production efforts and filed for bankruptcy, TRC acted as advisors to the City of Tempe and the Federal Transit Administration (FTA) on their claims to AVS assets, and on the resolution of financial issues between the City and the FTA.
- Mr. Pigman directed TRC's engineering oversight of the development of a mid-size hydrogen fuel cell prototype bus for the Greater New Haven Transit District. This project is funded by special FTA Research and Development grants.
- In the field of alternative fuels analysis, Mr. Pigman directed TRC's contract with the Westchester County (NY) DOT to analyze exhaust emissions generated by the WCDOT's diesel bus fleet using a variety of different test fuels. This project involved extensive testing of WCDOT buses by West Virginia University's vehicle emissions laboratory in Morgantown, W.V. The objective of the project was to assist WCDOT in its efforts to curb diesel bus emissions in eastern New York State, declared to be a non-attainment area by the EPA.
- Most North American transit systems still rely on basic diesel bus technology for the bulk of their operations. Mr. Pigman has directed numerous projects for clients which involve the development of detailed specifications for new, standard bus purchases. As just one example, Mr. Pigman has directed TRC's development of specifications for several classes of new diesel buses for Rockland County, NY, a suburb of New York City. TRC has



developed bus specifications for the County's purchase of new highway commuter buses, new 35-foot and 40-foot transit buses, and several sizes of paratransit buses. This project, like many similar ones undertaken by TRC, involved the review of requests for "approval equals" by prospective bus builders, negotiations with the selected bus builder, and assistance with pre-production meetings.

- Mr. Pigman has developed TRC into the leading bus engineering firm in the U.S. with practice areas in bus design, bus maintenance, fleet defect analyses, bus import, fire and accident investigations, etc. Under Mr. Pigman's direction the firm has assisted bus operating companies with investigations into structural problems in buses, performance defects, bus fires, bus accidents, warranty claims, bus manufacturing oversight, etc.

(1979 - 1990) National Transit Services (NTS), President

Mr. Pigman was the founder and Chief Executive Officer of National Transit Services, Inc. until the sale of the company in February 1990. In this capacity he first developed an extensive transit consulting practice offering services in route/schedule analyses, labor-management conflicts including labor contract negotiations, grant preparation and management, marketing programs, risk management plans, finance referenda and many other support programs for transit managers and boards of directors.

As the firm grew, Mr. Pigman developed NTS into a major player in direct contract management. The role of the firm shifted from one of pure advice giving to actual operations. This involved fleet acquisitions, garage design and operations, labor management, finance, grants, comprehensive service plans, referendum management, FTA relations and long range planning. When the movement towards transit privatization began to take root, NTS developed a significant share of the market. At its peak, prior to the sale of the company, NTS owned or managed over 2,000 buses and operated transit systems in 18 cities throughout the U.S. Mr. Pigman was also the lead consultant advisor to Chase Manhattan Bank on a bankruptcy case of a major railcar/bus remanufacturing company in New York State.

(1978 - 1979) Virginia Dept. of Highways & Transportation Director, Public Transportation Division

Mr. Pigman served as the State of Virginia's first Director of Public Transportation. Organized and staffed the Division. He worked directly with the Governor, the Secretary of Transportation, the State Legislature, and the Commissioner of Highways and Transportation to create policies and laws on public transportation for the State of Virginia. Mr. Pigman directed a comprehensive financial analysis of the impact of the Washington, D.C., Metrorail construction on the financial capabilities and credit ratings of local governments in Northern Virginia. In addition, he directed various studies and review of new rail rapid transit services into Virginia including the major airports and he directed a comprehensive study of insurance programs for all publicly operated transit systems in Virginia. Established the state's first transit demonstration grant program. Mr. Pigman also served as the State's voting member on the following transit boards: Northern Virginia Transportation Commission (Washington, D.C.); Tidewater Transportation District Commission (Norfolk area); Peninsula Transportation District Commission (Newport News area).



(1976 - 1978) Illinois Department of Transportation, Division of Public Transportation, Chief of Technical Studies and Program Development

As Chief of Technical Studies, Mr. Pigman supervised staff and consultant involved in technical and financial analyses of public transportation systems that were funded by the State of Illinois, directed a comprehensive audit of bus systems operated in Illinois by the Bi-State Development Authority (St. Louis), directed a comprehensive restructuring of the routes and schedules of the Springfield, Illinois bus system, and directed a comprehensive risk analysis of vehicle insurance programs for all bus systems except those in Chicago. In addition, he directed staff and consultant studies of proposed extensions of Chicago Transit Authority rail rapid transit services to Chicago's O'Hare Airport and of new subway service beneath Franklin Street in downtown Chicago. He also initiated target group marketing effort aimed at two selected public transportation corridors in Peoria, Illinois.

(1974 - 1976) DeLeuw, Cather & Co., Project Manager, Technical Studies

Mr. Pigman served as Project Manager for public transit studies, management audits and transit development programs including the following projects: Des Moines, Iowa Transit Study; Freeport, Illinois – Preparation of a Transit Development Program; Danville, Illinois Transit Feasibility Study; Northwest suburban Mass Transit District (Chicago); North Suburban Mass Transit District (Chicago) Transit Plan.

(1973 - 1974) Champaign – Urbana Mass Transit District, Trustee

As one of five Trustees for MTD, Mr. Pigman had the responsibility for overseeing the management and financing of a joint city/university bus system operating in the cities of Champaign-Urbana and on the University of Illinois campus.

EDUCATION

- University of Georgia, A.B., 1966
- University of Georgia, M.A., 1968
- University of Illinois, Ph.D., 1976



RESUME OF DANIEL DENMAN, PROJECT MANAGER

PROFESSIONAL EXPERIENCE

(2006 - Present) TRC Engineering Services, Senior Bus Engineer

Mr. Dan Denman, Senior Bus Engineer, has 30 years experience in bus engineering, design, manufacturing, and maintenance. Since 2006, Mr. Denman has been responsible for supervising TRC's bus inspection program which includes both in-plant Q/A inspections and fleet maintenance and turnover audits of bus fleets in revenue service.

Mr. Denman supervises a group of eight bus engineers and 38 resident inspectors who conduct bus inspections for TRC clients. Mr. Denman has supervised the assembly and delivery of over 4,000 transit buses of all types during his tenure at TRC, and he has managed over 30 bus engineering projects involving new bus design and specifications and issues in bus engineering and design.

(2005 to 2006) Millennium Bus, Roswell, NM, Senior Engineer

Millennium Bus, the successor company to Nova Bus in Roswell, NM, retained Mr. Denman under contract to develop a design for a new low floor bus product. He was responsible for the bus structure design, suspension system, and overall bus design concept. Mr. Denman was also responsible for managing the Altoona testing for this prototype low floor bus.

(1984 to 2005) Neoplan USA Corporation, Engineering Manager

Responsible for managing engineering operations at Neoplan's bus manufacturing facility. Coordinated engineering functions to meet production requirements.

Responsible for researching and implementing measures to increase productivity and decrease per unit cost. Supervision of team which included representation from all major departments i.e. production, quality control, purchasing, accounting, and engineering resulting in a \$30K per unit cost savings.

Structural Group Leader and Pilot Bus Production Manager (2000 to 2004)

Responsible for research and design of full monocoque bus chassis and supervision of pilot production to implement new structure and component designs before full production start up. Work involved articulated and 40 foot bus designs.

Lead Engineer (1992 to 2000)

Responsible for structural design, fuel systems (LNG, CNG and diesel), pneumatics, brakes and suspension systems. Supervision of designers, drafters, and engineering support staff.

Engineer (1988 to 1992)

Responsible for paint schemes, seat layouts, windows, bumpers, wheelchair lifts, escape hatches, doors, sheet metal parts.



Designer/Drafter (1984 to 1988)

Responsible for structure, suspension, pneumatics, seat layout designs and drawings.

EDUCATION

- B.S., Kennedy-Western University, Engineering, 2006
- A.A., Lamar Community College, General Studies, 1993
- Certificate of Management, American Management Association, Fundamentals of welding, 2003
- Bendix Airbrake Design System Certificate, Colorado State University, 1983

PROFESSIONAL DEVELOPMENT

- Committee member for ADA design regulations and guidelines for the American Public Transportation Association.
- Committee Member for Alternate Fuel Systems regulations and design guidelines for the American Public Transportation Association.



RESUME OF ERNESTO PIMENTEL, RESIDENT INSPECTOR—PROTERRA, GREENVILLE, NC

PROFESSIONAL EXPERIENCE

(2010 – Present) TRC Engineering Services, Resident Inspector

Mr. Pimentel is TRC's Q/A inspector assigned to projects involving bus engineering inspections and bus maintenance audits. He has performed bus inspections at the New Flyer plant in St. Cloud, MN for the City of Gardena, seven (7) buses, for Milwaukee Transport Services, ninety (90) buses, Metro Transit, St. Paul, MN, twenty-five (25) buses and currently fourteen (14) buses for Southwest Ohio Regional Transit Authority, (SORTA) in Cincinnati, Ohio.

In addition, Mr. Pimentel has assisted with several of TRC's Bus Inspections at Gillig for customers including; Hillsborough Area Regional Transit (HART), Memphis Area Transit Authority (MATA), Central Ohio Transit Authority (COTA), San Mateo Co. Transit District (SAMTRANS) and Greater Attleboro Taunton Regional Transit (GATRA).

(2002 - 2010), Quikrete, Atlanta, GA, Production Manager

- Managed and Oversight of production line manufacturing area.
- Ordered the raw materials to operate the finish product in a finished state.
- Scheduled incoming products (tanker, material, support material).
- Supervised a 24/7 production line manufacturing facility.
- Scheduled shifts to complete the order board.
- Scheduled employees to be the leanest possible for delivery of finished product to the local and state wide locations.
- Worked with support vendors to comply with company standards and shipment schedules.
- Trained work force to use lean manufacturing, mrp, mrpll, trouble-shooting.

(1997 - 2002), Transit Resource Center, Bus Inspector and Auditor

Mr. Pimentel served as TRC's Chief Resident Inspector at the following bus manufacturing locations.

- Nova Bus – Schenectady, NY.
- Orion Bus – Oriskany, NY
- NABI – Budapest and Anniston, AL locations.

Mr. Pimentel conducted bus production quality assurance inspections at the above locations for the following TRC clients among others:

- Capital District Bus Transportation Authority – Albany, NY.
- Regional Transportation Commission – Las Vegas, NV
- Toronto Transit Commission – Toronto, Ontario
- City of Tempe, Arizona

Transit Resource Center Clients included: Las Vegas, Nevada; Albany, New York; Tempe, Arizona; Toronto, Canada; San Bernardino, California; Los Angeles, California; and Stockton, California.



(1996 - 1997) Metro Trans Corporation, Griffin, GA, Production Line Manager

- Responsible for the production line process of the Classic Model Product Line.
- Maintained the projected production schedule and daily operational duties.
- Introduced cross-training and new production methods for assembly of installation. Updated welding processes, finishing inspection standards, quality control , safety standards, progressive line manufacturing methods and control (JIT, MRP, MRPII,)
- Final customer delivery

(June 1988 - March 1996) Nova Bus Roswell, Roswell, NM, Production Manager

- Instructed and supervised up to 175 hourly and 15 -25 Production Supervisors and Team Leaders on the Production arena.
- Oversaw the assembly of the manufacturing of interior, power packs, exterior and final presentation to customer on-site inspection teams.
- Ensure road testing, paint, and final acceptance of manufacturing specifications and Customer Delivery Standards were completed to property RFP contract.
- Maintained required production assembly rates and increased Inter-Departmental performance to include using production methods as JIT, MRP, MRPII.
- Incorporated methods to increase productivity in cross training, department staffing requirements.
- Assured employee progressive discipline methods, reduced manning turnovers.

(June 1986 - May 1988) Neoplan U S A, Lamar, CO, Production Superintendent

- Developed cross training programs through inter department manning in production manufacturing team concept.
- Increased production schedule in the customer delivery department by using improved Vehicle scheduling and presentation methods to on site customer.
- Assured that all products were being manufactured to customer production specifications and meet Federal Motor Vehicle Standards and Commercial Standards for the public and private transportation sectors.
- Oversaw the performance of 125 hourly employees, Production Supervisors, Quality Inspectors and interface with the requirements of on-site inspection acceptance Teams.

EDUCATION

- Texas Southmost College - Attended Texas Southmost college two years of a four year program. Completed the basic requirement for the two year AA degree.
- Management training - 100 plus hours in the business fields.

LANGUAGES

- English – Fluent
- Spanish – Advanced



RESUME OF DON WELLS, RESIDENT INSPECTOR—NEW FLYER, CROOKSTON, MN

PROFESSIONAL EXPERIENCE

(2011 - Present) TRC Engineering Services, Resident Inspector

Mr. Wells joined TRC from Chapel Hill Transit in 2011. Some of his recent in-plant inspection projects include:

- Orange County Transportation Authority (OCTA), New Flyer
- City of Phoenix, AZ, New Flyer
- AC Transit, CA, New Flyer
- Proterra Electric Bus Project for StarMetro (Tallahassee, FL)
- Temporary Maintenance Manager, BlueGo Transit Management, Inc. in South Lake Tahoe, CA

(2005-2011) Chapel Hill Transit, Maintenance Specialist/Facility Manager

In-plant inspection of new NABI Transit Vehicles. Developed budget for Building Maintenance Division. Tasks include repairs and troubleshooting all vehicle systems and building systems. Assist mechanics with trouble shooting and training on the newer electronic and mechanical systems installed during manufacture of vehicles.

(1987 -2005) Chapel Hill Transit, Superintendent of Transit Maintenance

Directed and supervised activities of the maintenance division to ensure dependable, safe and clean vehicles to meet the operational needs of the transportation department. Tasks include repairs and troubleshooting all systems on transit vehicles.

(1985-1987) Wausau Area Transit System, Transit Maintenance Supervisor

Directed and supervised transit and building maintenance. Tasks include managing parts department, procuring items for fleet and building, repairs and troubleshooting all systems on transit vehicles.

(1972-1985) University of Virginia, Charlottesville, VA: Highway Equipment Repairman

Tasks include repairs, training, and supervising transit staff including part time student service crew and mechanics for transit fleet.

CAREER ACCOMPLISHMENTS AND ACHIEVEMENTS

- Written procurement specifications; inspected on-site; and accepted delivery on over \$20,000,000 of transit buses.
- Written procurement specifications; inspected on-site; and accepted delivery on \$800,000. of mid-size transit buses including trolleys and body on chassis vehicles.
- Written procurement specifications for rehabilitation on RTS Transit Buses at a procurement cost of over \$2,000,000.
- Traveled on-site to research Hybrid-electric transit vehicles procurement; including the Alison Electric Drive System and Capstone Turbine System.



- Oversaw all aspects of four bay shop and lot expansion working with architects and contractors.

EDUCATION/CERTIFICATIONS

- Town of Chapel Hill- OSHA Implementation Training
- Town of Chapel Hill-Diversity Training
- Town of Chapel Hill Facilitative Leader Training
- Town of Chapel Hill Transactional Analysis and Drama Triangle Training
- North Carolina State University-Employee Appraisal
- University of Wisconsin-Transit Management
- University of Wisconsin-Dynamics of Communication-Certified Manager Program
- University of Wisconsin-Financial Management and Control for Public Sector
- University of Wisconsin-Managing in the Not-For-Profit Environment
- National Safety Institute-Bus Accident Investigation
- General Motors School of Product Service-Ten Training Certifications
- New River Community College-Automotive Mechanics Diploma

ADDITIONAL SKILLS

- Hybrid bus propulsion systems
- Electric vehicle engineering/testing
- Alternative fuels studies
- Bus specifications development
- On-board ITS applications
- Advanced body structure/materials



RESUME OF MIKE COOK, RESIDENT INSPECTOR—NEW FLYER, ST. CLOUD, MN

PROFESSIONAL EXPERIENCE

(2015-Present) TRC Engineering Services, Resident Inspector

Mr. Cook recently joined TRC's bus engineering group. He has conducted inspections on hundreds of buses prior to joining TRC.

(2009 - 2015) American Transit Works, Manager

Evaluated buses selected for remanufacturing to develop required work scope and estimated cost to remanufacturer

- Evaluated collision damaged buses to determine required scope of work and estimated cost of repair
- Developed re-manufacturing specifications on transit and highway buses
- Directed material purchasing for bus wreck and rehab projects
- Oversaw production work in carrying out bus overhaul and wreck repair projects, including bus teardown, reassembly and testing

(2003 - 2009) C & F Engineering, Welder/Fabricator

- Weldment, fabrication and production of engine cradle weldments
- Actual upper/lower torque rod weldments
- Operated C&C pattern torch

(1981 - 2003) Neoplan USA

Production Supervisor

- Supervision of Manpower
 - o Performance evaluations, man hours per unit, discipline, efficiency, setup of equipment and maintenance, interview of potential employees, develop skill sets, set advancement levels, customer acceptance, QA
- Training
 - o In-house weld certifications / Qualification Safety Training
 - o Job Operations / Job Request Training Operation of Equipment
- Inventory
 - o Storage of raw mat, cycle counts, BOM review, bin locations, working with purchasing, vendor sourcing / cost analysis
- Equipment Used
 - o 2 and 5-ton overhead crane, CNC and Manual 16" miter saw, band saw horizontal and vertical, Koike CNC and manual shape cutter, 60-ton iron worker, shear press brake, fork lifts

Pre-Production Supervisor

- Work with engineering to develop new models
- Test fit bus components / engine / transmission / axle / develop, design and buildup of weld fixtures for frame component



- Review building specification order
- Develop required manufacturing

PERSONAL TRAINING

- Various supervisor / teamwork training
- ISO 9000 / 16-hour internal audit course (1997)
- Styeline training / information system
- Safety training / Allianz Supervisor Safety Training Program
- Welding Certification training
- Spanish as a second language

EDUCATION

- Graduate of Springfield High School
- 2-year construction trade certification
- 2-year welding trade certification
- 2-year certificate of weld training at Lamar College



RESUME OF SILVIO MARINELLI, RESIDENT INSPECTOR—NEW FLYER, WINNIPEG, MB

PROFESSIONAL EXPERIENCE

(2007 - Current) TRC Engineering Services, Resident Inspector - New Flyer & Motor Coach Industries - Winnipeg

Mr. Marinelli serves as an engineering consultant and quality assurance resident inspector for TRC clients at New Flyer and Motor Coach Industries. He has inspected over 200 buses at MCI and over 1000 buses at New Flyer. Mr. Marinelli has completed quality assurance inspections at MCI for Georgia Regional Transportation Authority, Potomac and Rappahannock Transportation Commission (PRTC), and Capital District Transportation Authority. He has completed quality assurance inspections at New Flyer for Omnitrans, Santa Cruz MTD, the City of Edmonton, Metrolinx-Greater Toronto Transportation Authority, Rochester-Genesee Regional Transportation Authority, the Connecticut Department of Transportation, and the City of Simi.

(1980 - 1991) Lugano Enterprises - Trolleybus Engineering Consultant (part time)

Mr. Marinelli served as a Professional Engineer for electrical distribution and control design for a previous Vancouver (TransLink) trolleybus order. Lugano Enterprises was a subcontractor to New Flyer on this trolleybus order. Mr. Marinelli interpreted Vancouver specifications, compared them with available options, and then designed and oversaw installations of complete electrical schematics, wiring, electrical harnesses. Developed routing drawings for wiring systems used in the assembly of the trolleybuses.

(1978 - 1981) Flyer Industries Ltd.

Electrical Project Engineer □ led all electrical transit vehicle design in last year at Flyer. Supervised 2 Elec. Engineers and 3 designers from the technical and schedule point of view. Work involved bidding and designing to customer specifications, automotive standards incorporation, component selection, prototyping and providing technical support to the production department.

(2005 - 2006) Manitoba Hydro International: Technical Due Diligence for African Generating Station for Electrical Equipment at Cohora Bassa Dam Maputo Mozambique, Africa

On a team of 16 international specialists from MHI, Nippon Koie Japan, Nippon Koie UK and consultants from Brazil, Australia and Portugal to evaluate the sale of the Cohora Bassa Generating Station in Mozambique from Portugal to Mozambique for about 1.2 billion Euro. Task included evaluation of the generators and all associated electrical equipment in the generating station. Identify any existing condition that would limit the life of the station in a report. I interviewed the staff at the station and identified any concerns they had and any documented maintenance issues. By utilizing my experience, consulting Manitoba Hydro specialists and Manitoba Hydro practices I prepared a winning condition assessment proposal. After a site evaluation a technical due diligence report was prepared for the client



identifying deficiencies in Stator winding clamping, and end caps, HV transformer bushing and other issues.

(2003 - 2005) Manitoba Hydro: Generation Maintenance Engineering Department

Generation Maintenance Engineer directly worked at Generating Stations throughout Manitoba and associated work for over 15 years. My general work is condition assessment of failing or failed equipment in generating stations once site technicians have indicated problems may exist, report writing for evaluation of the equipment including recommendations for repair or replacement and testing generators and auxiliary equipment as necessary to assist in evaluations.

Supervised a team of professionals that addressed then coordinated their electrical projects at generating stations on the Winnipeg River. Directed projects with site technicians, supervisors, supporting technical groups(i.e. Insulation testing, protection and computer systems groups) to evaluate problems and arrange tests as required. Specialized in Generator Testing, Fire Safety Systems and Ground Grid system deficiencies for the Generation South division of Power Supply Business group of Manitoba Hydro. Also performed the section head duties for the electrical section consisting of 12 people when designated from Jan 2004 to July 2006.

(1998 - 2001) Manitoba Hydro: Generation Maintenance Engineering Department

Generation Test Engineer. Mainly responsible to ensure the Generators in Generation South Division are tested to US federal standards (NERC) so that Manitoba Hydro is compliant and thus permitted to export electrical power to the USA. Responsible for scheduling unit outages, unit tests, writing the procedures, supervising the tests, reporting the results and correcting any deficiencies. Results of the generator tests submitted to System Performance engineers to update the Generator Models used in system load studies. A report is also issued in regards to NERC compliance. Also, responsible for specifying then purchasing test equipment.

Responsible for various other Control Engineering jobs in the Generating Stations. The jobs included PLC commissioning and decommissioning, teaching controls courses at Red River College and arrange tours and technical demonstrations for engineering students at the generating station.

(1994 - 1998) Manitoba Hydro: Electrical/Mechanical Engineering Department; Power, Planning & Operations

Design Engineer in electrical, controls, PLC and Generation Apparatus upgrading of Generating Stations. Main accomplishments include the Limestone GS data monitoring enhancement in 1997, the Laurie River GS Plant automation in 1998, the Selkirk GS 250V DC power system upgrade specification, the McArthur Falls GS Station Service 600V upgrade, Pine Falls 250V DC and Station Service upgrades and PLC applications. Also responsible for the DC rezoning of Grand Rapids Unit 2 & 3, oil containment electrical work at McArthur and Pine Falls Generating Stations and Selkirk GS heating system, fire pump and other equipment electrical upgrades and data monitoring.



(1985 - 1994) Manitoba Hydro: Telecontrol Department, Engineering & Construction

Scheduling and Cost Control Engineer and head of the section. Responsible for the annual department budget and a monthly general projects report. Supervised a Technical Assistant III and an accounting clerk. Responsible for work order tracking databases, project scheduling, resourcing, networking and cost control. In 1990, appointed the project Coordinator for the VHF radio phase 2 project in order to bring the over budget and late project under control. Led '93-94 Rectifier Replacement Program and the developed a standard design strategy for 48V power systems

System Control Engineer. Designed computer based test and monitoring equipment. This design involved software, hardware, testing and commissioning of complete systems. These systems included Testsets, RTU interfacing D/A units, RATE (automatic system tester), DCP (weather data collection). Also a support engineer for the SCADA design group.

EDUCATION/TRAINING

Bachelor of Science in Electrical Engineering - University of Manitoba May 1978

Masters in Computer Engineering Courses - University of Manitoba (1982 - 1986)

Membership in Professional Societies and Community Service

- Member of the Association of Professional Engineers and Geologists of Manitoba
- Member of Manitoba Hydro Professional Engineers Association 1981 - 2006



RESUME OF VIM VILLAPANA, RESIDENT INSPECTOR—GILLIG, LIVERMORE, CA

EXPERIENCE

(2000 to Present) Chief Resident Inspector, TRC Engineering Services, LLC

Mr. Villapana has over 20 years experience in transit maintenance. For the past 16 years he has been assigned to a wide range of bus inspection projects for TRC clients.

Mr. Villapana has conducted numerous fleet maintenance audits for clients such as San Mateo County Transit (SamTrans), the City of Pasadena, the City of Visalia, Antelope Valley Transit Authority (AVTA), the Regional Transportation Commission in Reno, NV, Access Services in Los Angeles, CA, and First Transit Operations in Philadelphia, PA.

Mr. Villapana has also conducted QA inspections on new and rebuilt bus fleets for nearly 60 transit agency clients served by TRC, including inspections of structural repairs, road test evaluations, electrical systems, power plant performance, etc. He is an expert on Gillig buses, having managed bus inspection projects involving several hundred Gillig buses. Since joining TRC as our full-time resident bus inspector at the Gillig plant, Mr. Villapana has been responsible for numerous Gillig bus inspections for these and other TRC clients:

(2004 - 2005) Coach Maintenance Supervisor, Monterey-Salinas Transit - Monterey CA

Mr. Villapana's duties entailed the supervision of Journey and Apprentice mechanics on the inspection, repair and preventative maintenance of a fleet of Gillig Low floors, Gillig Phantoms and CNG powered Orion Coaches. Directed and supervised personnel while performing major and minor inspections; Identifying defects and repairs accordingly. Ensured that work performed was completed in a timely and efficient manner, processed warranty items, tracked common failures and trends and provided training sessions. Evaluations and performance appraisals for mechanics and service workers.

Coordinated vendor related repairs, warranty and training sessions for mechanics provided by the subcontractors including: Thermoking, Cummins West, Gillig Corp, Carrier, Dinex, Detroit Diesel, ZF Transmissions, Voith, Allison Transmission, Lift U, Ricon Lift, Allen Bradley, GFI, Luminator, Twin Vision, March Networks, Bus Watch REI, Safety Vision, Apollo Systems, GE Kaletel, Seon, Dura, Stormtite, Ricon Windows, Motorola, ACS Orbital, Siemens, Trapeze, IniT, Digital Recorders.

(1999 to 2004) Coach Maintenance Supervisor, AC Transit – Oakland, CA

Mr. Villapana's duties included the supervision of journey level and apprentice mechanics on the inspection, repair and preventative maintenance of a fleet of coaches that were comprised of Gillig, New Flyers and NABI coaches. Directed/Supervised personnel while conducting major and minor inspections, identifying defects and repairs accordingly. Ensured that the work performed was completed accurately and in a timely manner; processed warranty items; identified common failures and trends; and provided training sessions, evaluation and



performance appraisals for the mechanics. Was assigned as a member of the inspection crew at the NABI plant in Alabama when AC Transit participated on a 50-coach, low floor bus buy in 2000.

(1982 to 1999) Coach Maintenance Supervisor, Valley Transit Authority – San Jose, CA

Duties entail the supervision of Transit Mechanics on the inspection, repair and preventative maintenance in a fleet oriented environment. The fleet consisted of Gilligs, Metros, New Flexibles and GMC RTS 4's. Assisted staff in conducting major and minor inspections, identifying defects and repair accordingly. Duties also included the assurance of quality work performed; processing of warranty items; projection of trends and component tracking. Also led a team of coach inspectors when VTA purchased 100 high floor Gilligs in 1998. The team conducted "shake down" inspections, identify fleet defects and corresponded with the Gillig representatives to ensure that coaches delivered were within specifications. Also responsible for coordinating with subcontractors such as Cummins, Detroit Allison, Voith, Thermoking, Motorola, Lift-U, Luminator and GFI to ensure that subcomponents are within specifications prior to coach delivery.

OTHER RELATED EXPERIENCE

- Supervisory, maintenance and mechanical experience
- Completed VTA Leadership Academy
- Completed National Training Institute (NTI) Training At VTA
- Led teams of coach inspectors at 3 prominent Transit Authorities
- (VTA, AC Transit and Monterey Salinas Transit)
- Attended APTA conventions for new coach developments
- Attended Hybrid Diesel Electric bus consortium at Stockton CA.
- CNG Heavy duty bus training at Monterey Salinas Transit
- AC Transit Fuel Cell Technology
- Inspected over 1000 Gillig Heavy duty Coaches for numerous transit properties



RESUME OF HARLEY ROMAN, RESIDENT INSPECTOR—VOLVO/NOVA, PLATTSBURGH, NY

EXPERIENCE

(2012 to Present) TRC Engineering, Vehicle Technical Specialist

Mr. Harley Roman is one of TRC's Engineers in our bus engineering group. He is assigned to our Quality Assurance Division where he conducts performance testing on new buses coming out of production as well as on client buses going through refurbishment or collision repair. He manages various residential inspections for new buses and maintenance performance evaluations on fleets around the U.S.

(1995 to 2012) Sole Proprietor – Pit Lane Motorsports

- Analyzed design flaws in front steering axle operation on 40 foot transit buses for Gold Coast Transit in Oxnard, CA
- Performed onsite services utilizing mobile utility vehicle for individual needs and fleet maintenance audits
- Troubleshoot diagnostics, tune-ups, general repair, performance upgrades, preparations prior to sale, inspections prior to purchase
- Located parts and recommended builds
- Serviced automobiles both classic and late model, utility and recreational vehicles, watercraft and small engine utilities

(2012 part-time) CarQuest Auto Parts

- Customer service representative
- Automotive parts locator, sales and inventory management

(1979-1982) Arlington Heights Marine

Finished construction and prep for new boat inventories

(1974-1977) Crab Orchard Marine

Managed shop and serviced individual boat owners

(1972-1974) Barny's Boats

Managed Service Department. Serviced individual boat owners and new inventories

EDUCATION/TRAINING

- Oakton Community College in Automotive Tech - Certificate of Completion
- Oakton Community College in English and Philosophy - Credited with Honors
- University of Southern Illinois, BA in General Education and Marketing Production



SECTION 3

Technical Approach



Section 3

Technical Approach

The following scope of services will be utilized to production line vehicle inspections of the vehicles procured by the West Virginia Division of Public Transit. The tasks below will address how TRC will meet the Division of Public Transit's requirements:

TASK 1: PRE-PRODUCTION ACTIVITIES

Before production starts on the Division of Public Transit's buses, TRC's Resident Inspector will attend a pre-production meeting with representatives from the Division of Public Transit and the manufacturer to review all preparations for the project startup. Prior to production, TRC will:

- Review the Code of Federal Regulations and the Society of Automotive Engineers Standards to reference the Manufacturer's practices
- Review the State Vehicle Regulations
- Review the Vehicle Specifications
- Measure ADA Compliance
- Establish In-Plant Communication

TRC's Chief Resident Inspector will review the manufacturing procedures with specific attention to the Division of Public Transit's build specifications. TRC will meet with the manufacturer's Production Manager to identify and inspect all major components and sub-assemblies intended for use on the Division of Public Transit's buses.

TASK 2: REVIEW INTERNAL QUALITY CONTROL

The manufacturer must have a fully documented Quality Control Program in place prior to the start of production work on the Division of Public Transit's buses. TRC will review the manufacturer's internal Quality Control Program at the outset of the project to ensure that the program is complete, that it has been fully activated, and that it is being consistently and continually maintained. Throughout the production period, our Chief Resident Inspector will conduct random checks of the manufacturer's plant to verify that the Quality Control system is fully functional starting in the material receiving department, sub-component shops, assembly floor, the production line, final finish, and shipping. TRC will record the findings from these audits on an Internal Audit Form, and report the findings to the Division of Public Transit.

Upon completion of the production of each unit and conditional acceptance by the Chief Resident Inspector, each vehicle will be given a final review for compliance with contract specifications. Any discrepancies or defective items discovered will be called to the attention



of the manufacturer's Quality Assurance Representative. These deficiencies will be corrected on each vehicle before sign-off, and the information will be documented in a final report to the Division of Public Transit.

TASK 3: INSPECTION OF BUS PRODUCTION

We will assign full-time dedicated Resident Inspectors to monitor all phases of production, testing, and pre-delivery activities at the manufacturer's location. Our Inspectors will have available a checklist of items, all specifications, and contract documents enabling them to conduct a comprehensive configuration audit on the buses. Upon completion of the production of each unit and conditional acceptance by the Resident Inspectors, each vehicle will be given a final review for compliance with contract specifications. TRC's inspection efforts during the production phase will include, but are not limited to, the following:

- Review of weld quality/welding of subassemblies.
- Critical build-up of subassemblies and modular sections prior to joining into larger coach modules.
- Identification and repair of hydraulic, air conditioning and fluid leaks.
- Torque of critical bolts and fasteners.
- Routing of wiring and protection from abrasion and sharp edges.
- Integrity of circuit terminals in application and installation.
- Alignment of doors and hinges, floor covering, ducting, interior and exterior panels, moldings and seat supports.
- Proper grade bolts, appropriate type and application of blind fasteners according to specifications.
- Proper thickness, type and adhesion of undercoating, sealants, interior and exterior paint and primers according to specifications
- Proper materials, routing and support of rigid and flexible lines for steering, transmission, pressure and temperature sensors, coolant, brakes, wheelchair lift or ramp including primary connections and manual override systems according to specifications.
- Installation and function of heating and air conditioning piping, sensors, compressor support and vibration isolation.
- Front suspension alignment checks.
- Suspension and shock absorber installation.
- Junction and component boxes -verify location and integrity of junction boxes for electrical components.
- Drive train components and supporting electrical, hydraulic and fluid systems.
- Verify the proper installation, alignment and operation of the wheelchair lift or ramp.
- Verify rattle-free installation of barriers and panels.
- Verify easy access to components mounted behind paneling.



- Seating-Verify type and arrangement of passenger seating including wheelchair positions and tie downs.
- Verify all interior doors for appearance, fit and function; panels for door operating mechanisms and other doors with or without special tools as specified.
- Passenger Assists-Verify presence and location of specified stanchions or handholds.
- Review Vehicles for -Code of Federal Regulations, Title 49 Regulatory Issues-Federal Motor Vehicle Safety Standards compliance.

Any discrepancies or defective items discovered will be called to the attention of the manufacturer's Quality Assurance Representative. These deficiencies will be corrected on each vehicle and the information will be documented in a final report to the Division of Public Transit. While the vehicle is being assembled, the Resident Inspectors will ensure that technical documentation exists for each step of the build process. This documentation is essential if the Division of Public Transit should need to investigate how a particular harness was installed or research other aspects of the manufacturing process after the vehicle has been assembled.

TASK 4: FINAL VEHICLE EVALUATION

Before the vehicles are delivered to the Division of Public Transit, TRC's Inspector's will conduct a final inspection where the inspectors will review all areas that were identified during the production inspection and assure that the necessary adjustments were made. The Inspectors will conduct a final inspection on the entire vehicle to assure the vehicle will be in satisfactory condition at delivery per vehicle specifications. The following are some, but not necessarily all, inspections that will occur during the vehicle's final inspection:

Interior

- Driver Controls: Verify accessibility and function of all switches and controls, ankle motion, grouping of controls, identification of prime controls and door control function.
- Instrumentation: Verify location, function and readability of instruments and indicators with steering wheel in straight ahead position.
- Interior Trim General Requirements: Verify absence of inaccessible maintenance areas, protuberances, sharp or abrasive edges.
- Trim Panels: Verify trim materials, surfaces and carpeting or panels of textured stainless steel, anodized aluminum or plastic as specified; verify painted areas free of dirt, runs and peel.
- Exit Signal: If specified, verify presence and function of chimes and switch tapes located near interior lighting fixtures with driver-controlled by-pass switch.
- Inside Mirrors: Verify presence and adjustability of inside mirrors and that their placement does not obscure right outside mirror.
- Radio System: Verify space for radio; verify presence of specified protected leads as applicable.



- Windows: Verify that all windows are distortion free and contain no scratches. Verify proper opening and closing functions and proper weather sealing. Check for proper emergency release function.
- Wheelchair Lift/Ramp: Verify accessibility and function of all switches, controls, cycle counters and safety sensors. Verify level and angles of platform, handrails and barriers. Verify weight requirements of platform and smooth operation of lift/ramp.
- Securement System for Wheelchairs/Mobility Aids: Verify presence, correct location and operability.
- Rear View Camera: Verify presence and operational.
- If specified, verify strobe light installation and operation.
- If specified, verify PA System installation and operation.
- If specified, verify placement and operation of security camera system.
- If specified, verify prewiring, mounting plate and stanchion for fare box installation provided.
- If specified, verify installation and operation of destination

Exterior

- Body: Inspect for fit and sealing (especially where fiberglass panels join the cab), lack of distortion and strain points at fasteners, proper sealing and finish.
- Rain Gutters: Verify installation of rain gutters as specified, inspect for dams or obstructions in gutters.
- Doors: Inspect door installation for fit and sealing, check for proper closure and tightness. Check for safety control, proper wiring and line routing. Check lock operations.
- Exterior Lighting : Verify type and function of headlights, marker lights, turn signal lights and curb area lighting.
- Outside Mirrors: Verify specified mirrors, rear field of vision.
- Exhaust Locations: Verify specified exhaust pipe routing and installation for proper discharge and absence of leakage.
- Fuel Tank and Filler: Verify fuel filler and tank installation per specifications.
- Bumper Material: Verify manufacturer specified color and material.
- If specified, Verify custom paint schemes, vinyl logos/stripes, lettering, painted or installed correctly.

Engine Compartment

- Inspect installation; check for improper line or wire routing; inspect for leaks and possible long-term problem situations.
- Listen for abnormal noises; check for harmonic vibrations in lines and line support if required.



- Inspect manufacturer modifications for design and installation integrity and possible OEM warranty conflicts.
- Batteries: Verify rating of batteries; verify correct positioning and securement.

Road Test

As part of the final inspection phase on vehicles, TRC's Inspector's will witness each road test, riding each vehicle listening for abnormal power train noises and interior rattles, as well as, observing for proper shift points, acceleration, braking performance, ride quality and appropriate functioning of other major mechanical systems.

TASK 5: PRODUCTION MEETINGS/OPEN ISSUES

Resolving issues that arise during the manufacturing process is a strong point in the TRC Inspection System. The Resident Inspector's primary goal is to have the manufacturer correct each production fault in order to comply with quality standards and specification requirements. Each fault that has not been corrected by week's end is placed on a Pending Points List. That list, described in greater detail below, numbers each issue identified and keeps an accurate accounting of each issue, which remains "open" until it has been resolved to the satisfaction of the Inspector. In those cases where the manufacturer refuses to correct a noted deficiency, the TRC Project Manager will intervene. If that proves unsuccessful, the Division of Public Transit will be notified and a decision made to either allow the deficiency or to correct it. Once a satisfactory determination is made on each issue, the point is "closed" with an explanation of how it was resolved and the date of resolution. To assist both the Project Manager and the Division of Public Transit, digital photographs will be sent via e-mail to help visualize the issue and assist with making a determination. Additionally, all project information will be posted on TRC's Zoho Client Portal (detailed information to follow).

Upon completion of the production of each unit, and conditional acceptance by the Inspector, each vehicle will be given a final review for compliance with the Division of Public Transit's contract specifications. Any discrepancies or defective items discovered will be called to the attention of the manufacturer's Quality Assurance Representative. These deficiencies will be corrected on each vehicle, and the information will be documented in a final report to the Division of Public Transit.

TASK 6: POST-DELIVERY BUY AMERICA AUDITS

After the completion of post-delivery inspections and conditional acceptance testing of the Division of Public Transit's vehicles, TRC will prepare a Post-Delivery Buy America Audit report for the bus order. The Post-Delivery Buy America Audit report will be distributed to the Division of Public Transit following the receipt of all Buy America reporting materials from the manufacturer and production of the last bus that has been accepted and delivered to the Division of Public Transit. The Post-Delivery Buy America Audit will verify that:

- The vehicles built and sold to the Division of Public Transit are the same as specified in the procurement documents



- Final assembly of the vehicles was carried out in the U.S. in compliance with Buy-America requirements
- A minimum of 60% of the component and sub-component parts of the vehicles were purchased from domestic U.S. sources
- The bus manufacturer has a current FMVSS certification on file for the model bus
- A resident inspector was on site during manufacture of the buses.

The report will also include an initialed and dated copy of the Division of Public Transit's Technical Specifications checklist. We will also prepare for the Division of Public Transit's signature on the Purchaser's Requirements Certification to be kept on file for future FTA audits.

TRC's methodology for conducting the Post-Delivery Audit is to verify that each bus meets the Division of Public Transit's unique specifications, and that the materials used during production are the same as those proposed during the Pre-Award Audit, or that an acceptable substitute was used. The Post-Delivery Audit report is prepared once the last bus has been completed by the bus manufacturer. We then obtain from the manufacturer, the actual bill of materials and invoices from suppliers used throughout the entire project. We propose to deliver the Post-Delivery Audit upon the completion of the last bus in the order, and as soon as the manufacturer releases the necessary records that must be included in the Buy America Audit.

Buy America Final Report

The Post-Delivery Buy America Final Report shall be submitted to the Division of Public Transit in the following manner: One (1) hard copy of the report shall be submitted. Reports shall contain a minimum of the following:

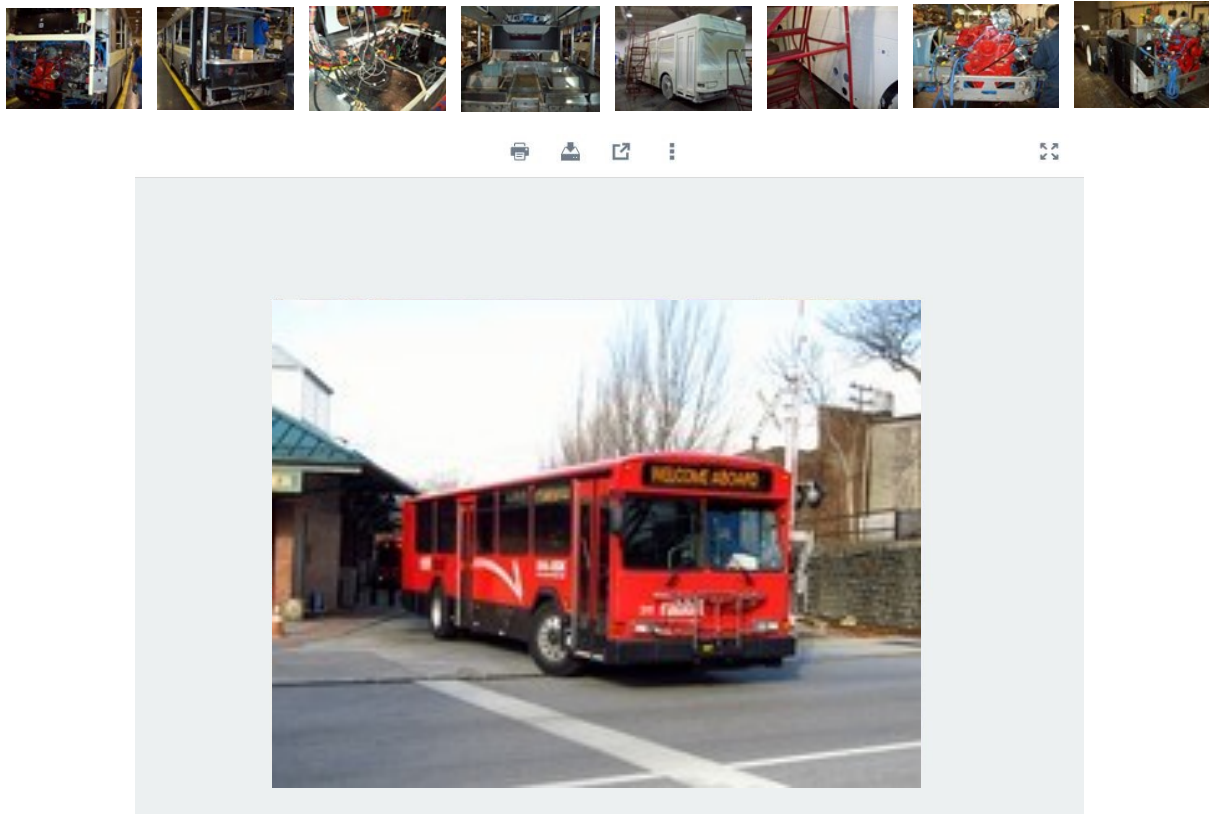
- **Introduction:** Buy America background and discussion of requirements, including any recent changes and discussion relating to comparison with the Pre-Award audit.
- **Signature Pages:** Auditor's certification, Inspector's certification, purchaser's Buy America certification, Purchaser's FMVSS certification, manufacturer's FMVSS approvals and certifications.
- **Methodology:** Discussion of how the audit was conducted.
- **Certification:** A necessary discussion about the vehicle and its compliance details, including a table of major components and subcomponents with compliance percentages.
- **Inspection:** A discussion of all visual inspections during the production; contain any inspector's notes, emails and any issues discovered during production
- **Manufacturer/Supplier:** Buy America certification with complete vehicle parts listing and compliance percentages.
- **Final Assembly:** Discussion and cost of final assembly process and a final configuration audit with regards to purchaser specifications.

TASK 7: COMMUNICATIONS AND REPORTS



TRC'S ZOHO CLIENT PORTAL

In February 2017, TRC implemented a project management system for our customers to use to view photos, videos and reports through Zoho Docs. We currently have all our customers up and running on this new system, which has been met with rave reviews.

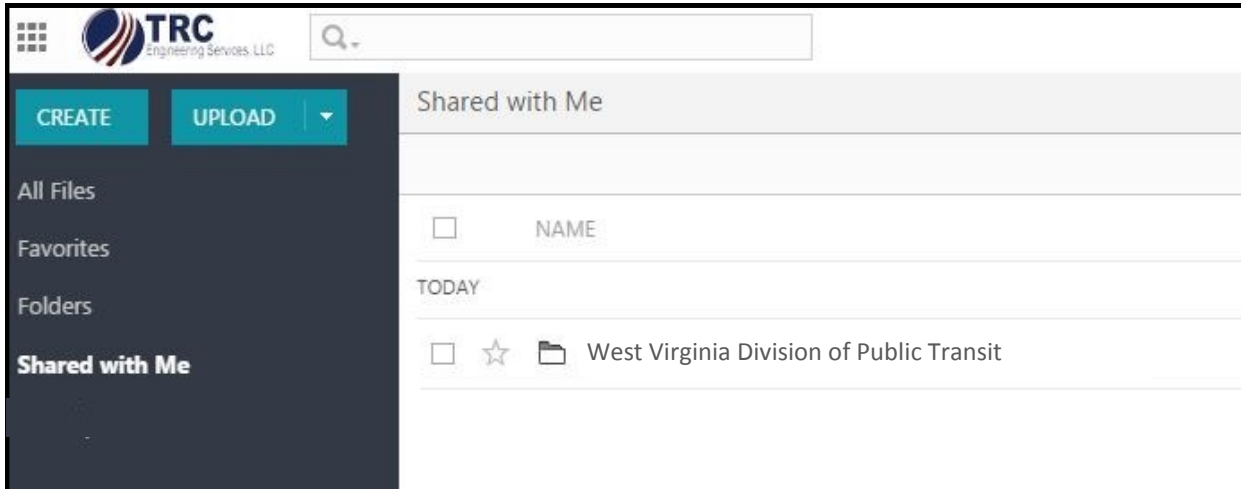


- **View and Download Photos and Documents as soon as they are available.** Download and print files right from Zoho.
- **Access from any computer or mobile phone.** Available 24/7.
- **Clients will be able to set up a private and secure account.** The Division of Public Transit representative(s) will receive an email with a secure link to the Division of Public Transit's folder. Representative(s) will then set up a free account to easily view files and photos.
- **Mark Files as a Favorite.** To easily come back and find document or photo, simply "star" the file and it will be saved to your "Favorites."
- **Files Accessible After Conclusion of the Project.** The Division of Public Transit's files will still be viewable/downloadable for sixty (60) days after the all inspections and audits in contract have been completed.
- **It's Easy as 1-2-3!** View the following page to see what the Division of Public Transit's Zoho Portal will look like and how simple it is to manage.



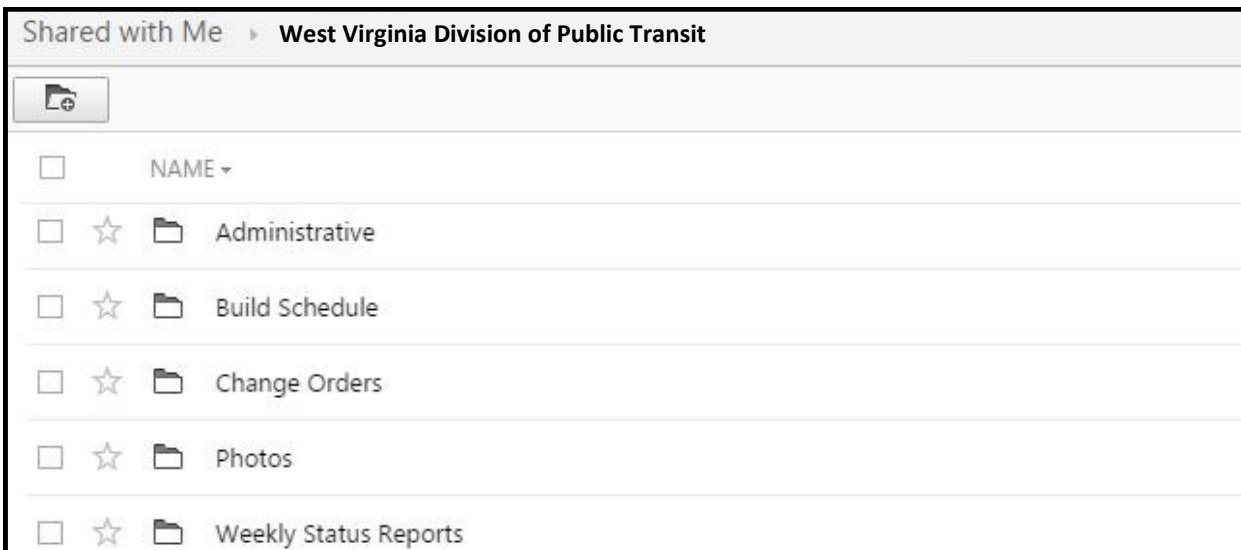
EASY AS 1-2-3!

1. Find the Division of Public Transit's folder in the "Shared with Me" tab:



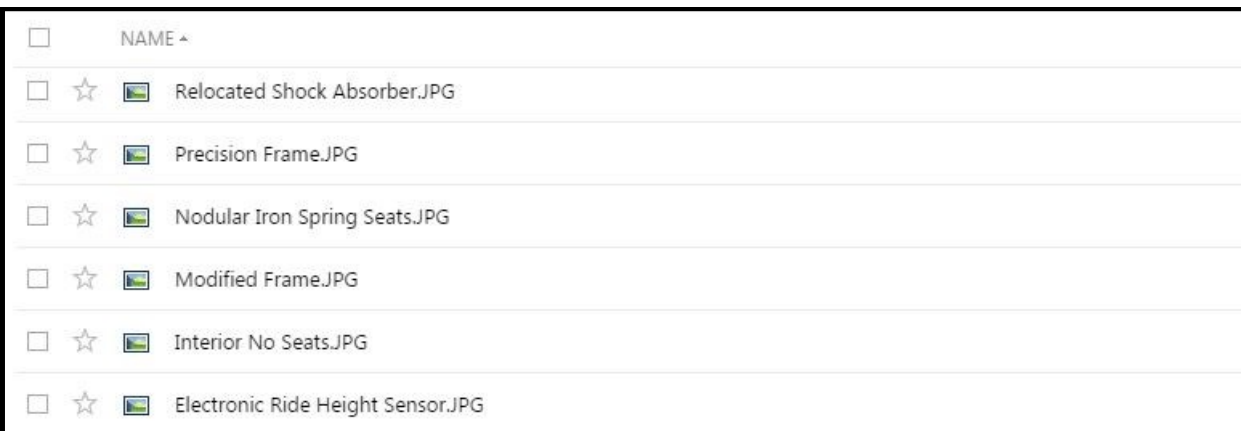
The screenshot shows a file sharing interface. At the top left is the TRC Engineering Services, LLC logo. A search bar is located at the top right. Below the search bar are two buttons: 'CREATE' and 'UPLOAD'. A sidebar on the left contains navigation options: 'All Files', 'Favorites', 'Folders', and 'Shared with Me' (which is highlighted). The main area is titled 'Shared with Me' and contains a table with a search bar and a list of folders. The table has a header row with a checkbox and the text 'NAME'. Below the header, there is a section labeled 'TODAY' containing one folder: 'West Virginia Division of Public Transit' with a checkbox, a star icon, and a folder icon.

2. Open and click on designated folder



The screenshot shows the 'Shared with Me' interface with the 'West Virginia Division of Public Transit' folder selected. The breadcrumb path is 'Shared with Me > West Virginia Division of Public Transit'. Below the breadcrumb is a folder icon. The main area contains a table with a header row with a checkbox and the text 'NAME'. Below the header, there is a list of folders: 'Administrative', 'Build Schedule', 'Change Orders', 'Photos', and 'Weekly Status Reports'. Each folder has a checkbox, a star icon, and a folder icon.

3. View Files



The screenshot shows the 'View Files' interface. The main area contains a table with a header row with a checkbox and the text 'NAME'. Below the header, there is a list of files: 'Relocated Shock Absorber.JPG', 'Precision Frame.JPG', 'Nodular Iron Spring Seats.JPG', 'Modified Frame.JPG', 'Interior No Seats.JPG', and 'Electronic Ride Height Sensor.JPG'. Each file has a checkbox, a star icon, and a file icon.



SECTION 4

Pricing



Exhibit A

REQUEST FOR QUOTATION

Production Line Vehicle Inspections

Includes on-site factory quality assurance
and production monitoring.

| CLASS | ITEM DESCRIPTION | UNIT OF MEASURE | UNIT PRICE PER VEHICLE | ESTIMATED QUANTITY | EXTENDED PRICE |
|-------|--|------------------------------------|------------------------|--------------------|----------------|
| A | Inspection of Low Floor Minivan with Ramp | EACH | \$935.00 | 10 | \$9,350.00 |
| B | Inspection of Converted Van with/without Rear Lift - 138" wheelbase various seating configurations | EACH | \$935.00 | 10 | \$9,350.00 |
| C | Inspection of Narrow Body Cutaway Van with/without Lift 138" wheelbase, various seating configurations | EACH | \$935.00 | 10 | \$9,350.00 |
| D | Inspection of Cutaway Van with/without Lift - 158" wheelbase 12 + 2 seating | EACH | \$935.00 | 10 | \$9,350.00 |
| E | Inspection of Cutaway Van with/without Lift - 178" wheelbase 16 + 2 seating | EACH | \$935.00 | 10 | \$9,350.00 |
| F | Inspection of Mid-Sized Medium Light Duty Transit Vehicles 190" wheelbase, 24 + 2 seating | EACH | \$935.00 | 10 | \$9,350.00 |
| | | UNIT PRICE PER MEETING/SPEC | | | \$0.00 |
| G | Attend Pre-Bid Meeting in Charleston, WV | EACH | \$3,100.00 | 5 | \$15,500.00 |
| H | Attend Pre-Production Meeting at Factory | EACH | \$3,100.00 | 6 | \$18,600.00 |
| I | Specification Assistance/Review/Update/Recommend Changes | EACH | \$2,970.00 | 6 | \$17,820.00 |
| | TOTAL BID FOR EVALUATION | *** | *** | **** | \$108,020.00 |
| | <i>*Complete form provided.</i> | | | | |
| | <i>*Please note these are only estimated quantities and do not reflect any guarantee of purchase.</i> | | | | |
| | <i>*The DPT may purchase more or less as needed.</i> | | | | |
| | <i>*Please do not alter pricing page.</i> | | | | |

NOTE: Possible manufacturers (subject to change) are:

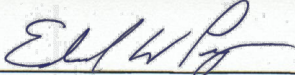
Braun Corporation, Winamac, IN;
Champion Bus, Inc., Imlay City, MI,
Eldorado Bus, Salina, KS;
Elkhart Coach, Elkhart, IN;
Mobility Transportation Services, Canton, MI;
Prime Time Specialty Vehicles, Elkhart, IN

SECTION 5

Required Forms



DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

 President

(Name, Title)
Edward W. Pigman, President

(Printed Name and Title)
2200 Winter Springs Blvd., Suite 106-344, Oviedo, FL 32765

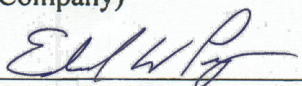
(Address)
P: 407-977-4500 / F: 407-977-7333

(Phone Number) / (Fax Number)
tranrc@earthlink.net

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

TRC Engineering Services, LLC

(Company)
 Edward Pigman, President

(Authorized Signature) (Representative Name, Title)
Edward Pigman, President

(Printed Name and Title of Authorized Representative)
May 3, 2017

(Date)
P: 407-977-4500 / F: 407-977-7333

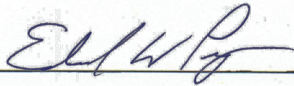
(Phone Number) (Fax Number)

REQUEST FOR QUOTATIONS
Production Line Vehicle Inspections

11.3 Ownership of Data: All materials developed for this project shall become the property of the West Virginia Division of Public Transit. All materials developed for this project shall also be provided in pdf format.

11.4 Federal Funding: Federal funding for this project is being provided by the Federal Transit Administration through CFDA grants 20.526, 20.509 and 20.513 for 100% of the project cost.

11.5 Contract Manager: During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Edward W. Pigman  _____

Telephone Number: 407-977-4500 _____

Fax Number: 407-977-7333 _____

Email Address: tranrc@earthlink.net _____

**REQUEST FOR QUOTATIONS
Production Line Vehicle Inspections**

EXHIBIT B

**CERTIFICATION OF PRIMARY PARTICIPANT REGARDING
DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS**

The Primary Participant (applicant for an FTA grant or cooperative agreement, or potential contractor for a major third party contract),

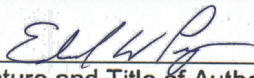
TRC Engineering Services, LLC (COMPANY NAME) certifies to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
2. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (2) of this certification; and
4. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

If the primary participant (applicant for an FTA grant, or cooperative agreement, or potential third party contractor) is unable to certify to any of the statements in this certification, the participant shall attach an explanation to this certification.)

THE PRIMARY PARTICIPANT (APPLICANT FOR AN FTA GRANT OR COOPERATIVE AGREEMENT, OR POTENTIAL CONTRACTOR FOR A MAJOR THIRD PARTY CONTRACT),

TRC Engineering Services, LLC, CERTIFIES OR AFFIRMS THE TRUTHFULNESS AND ACCURACY OF THE CONTENTS OF THE STATEMENTS SUBMITTED ON OR WITH THIS CERTIFICATION AND UNDERSTANDS THAT THE PROVISIONS OF 31 U.S.C. SECTIONS 3801 ET SEQ. ARE APPLICABLE THERETO.



Signature and Title of Authorized Official President

REQUEST FOR QUOTATIONS
Production Line Vehicle Inspections

EXHIBIT C

CERTIFICATION OF RESTRICTIONS ON LOBBYING

The undersigned (Vendor, Contractor) certifies, to the best of his or her knowledge and belief, that:

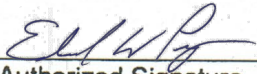
1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions. [as amended by "Government Wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, et seq.)]
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure. [Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.]

The Vendor, TRC Engineering Services, LLC, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Vendor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

5/3/2017

Date


Authorized Signature

Edward W. Pigman, President

Title



Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Request for Quotation
 33 — Service - Misc

Proc Folder: 310619

Doc Description: Production Line Vehicle Inspection Services

Proc Type: Central Master Agreement

| Date Issued | Solicitation Closes | Solicitation No | Version |
|-------------|------------------------|-------------------------|---------|
| 2017-04-12 | 2017-05-04 13:30:00 | CRFQ 0805 PTR1700000006 | 1 |

BID RECEIVING LOCATION

BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON WV 25305
 US

VENDOR

Vendor Name, Address and Telephone Number:

TRC Engineering Services, LLC
 2200 Winter Springs Blvd., Suite 106-344
 Oviedo, FL 32765
 P: 407-977-4500

FOR INFORMATION CONTACT THE BUYER

Melissa Pettrey
 (304) 558-0094
 melissa.k.pettrey@wv.gov

Signature X

FEIN # 47-3809285

DATE 5/3/2017

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

Request for Quotation

The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Department of Transportation, Division of Public Transit to establish an Open-end Contract for Production Line Vehicle Inspection Services (includes vans and buses) per the attached bid requirements, specifications and terms and conditions.

| INVOICE TO | | SHIP TO | |
|--|--|---|--|
| ACCOUNTS PAYABLE PUBLIC TRANSIT DIVISION OF BLDG 5 RM 650 1900 KANAWHA BLVD E CHARLESTON WV 25305-0432 US | | AUTHORIZED RECEIVER PUBLIC TRANSIT DIVISION OF BLDG 5 RM 650 1900 KANAWHA BLVD E CHARLESTON WV 25305-0432 US | |

| Line | Comm Ln Desc | Qty | Unit Issue | Unit Price | Total Price |
|------|---|-----|------------|------------|-------------|
| 1 | Production Line Vehicle Inspection Services | | | | |

| Comm Code | Manufacturer | Specification | Model # |
|-----------|--------------|---------------|---------|
| 25101502 | | | |

Extended Description :

Production Line Vehicle Inspection Services for vans and buses

| | | | |
|--------------|--------------------------------|--|-----------------------|
| PTR170000006 | Document Phase Final | Document Description Production Line Vehicle Inspection Services | Page 3 of 3 |
|--------------|--------------------------------|--|-----------------------|

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

ADDITIONAL INFORMAITON:

Request for Quotation

The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Department of Transportation, Division of Public Transit to establish an Open-end Contract for Production Line Vehicle Inspection Services(includes vans and buses) per the attached bid requirements, specifications and terms and conditions.

| INVOICE TO | | SHIP TO | |
|----------------------------|--------------|----------------------------|---------------|
| ACCOUNTS PAYABLE | | AUTHORIZED RECEIVER | |
| PUBLIC TRANSIT DIVISION OF | | PUBLIC TRANSIT DIVISION OF | |
| BLDG 5 RM 650 | | BLDG 5 RM 650 | |
| 1900 KANAWHA BLVD E | | 1900 KANAWHA BLVD E | |
| CHARLESTON | WV25305-0432 | CHARLESTON | WV 25305-0432 |
| US | | US | |

| Line | Comm Ln Desc | Qty | Unit Issue | Unit Price | Total Price |
|------|---|-----|------------|------------|-------------|
| 1 | Production Line Vehicle Inspection Services | | | | |

| Comm Code | Manufacturer | Specification | Model # |
|-----------|--------------|---------------|---------|
| 25101502 | | | |

Extended Description :

Production Line Vehicle Inspection Services for vans and buses

| | | | |
|--------------|--------------------------------|--|---------------|
| PTR170000006 | Document Phase Draft | Document Description Production Line Vehicle Inspection Services | Page 3 |
|--------------|--------------------------------|--|---------------|

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

APPENDICES



APPENDIX A

TRC's Quality Assurance Program



Appendix A

Bus Inspection Quality Assurance Program

TRC utilizes expert experienced professionals who review and familiarize the team with the manufacturer's Quality Assurance plan to ensure the manufacturer is following its processes, which includes, but is not limited to the following:

COMMUNICATION

TRC establishes lines of communication for the resolution of deficiencies identified in the manufacturing process. This includes the tracking of, and resolution of deficiencies identified by electronic emails to the manufacturer by TRC. This process will be communicated during pre-production meeting with the bus manufacturer to prevent the items from remaining unresolved for extended periods of time. This process includes involvement of the manufacturer and the manufacturer's staff in meetings for the resolution of problems identified during production until closure of these deficiencies.

INSPECTION STATIONS

Inspection stations will be at the best possible location to provide for work content and characteristics to be inspected. TRC reviews the documentation for each identified station of the manufacturing process for the work tasks and material. This review will include verification that the work tasks and materials are current, per contractual specifications, and are being applied to the Division of Public Transit's revenue vehicles. The vehicle manufacturer shall provide the facilities and equipment to inspect structural, electrical, hydraulic, and other components and assembly for compliance with the specifications. Stations also should be at the most logical location to inspect/test characteristics before they are concealed by fabrication or assembly operations. These locations shall minimally include: underbody structure completion, body framing completion, body prior to paint preparation, water test before interior trim and insulation installation, underbody dress-up and completion, complete coach prior to final paint touch-up, and complete coach prior to delivery.

INSPECTION OF MATERIALS

The TRC inspector shall ensure that all materials, components, and assemblies are inspected for conformance with all of The Division of Public Transit's specifications. TRC is responsible for review of documentation for each bus in production line for detail and accuracy, which includes, but not limited to, Non-conforming Material Tags, Welding Inspections (including ultrasonic testing, mag particle, dye penetration, destructive testing, etc., which may be performed by the manufacturer) and other pertinent Quality Control/Assurance documentation as it pertains to bus production.

INSPECTION RECORDS

TRC will review and familiarize its Resident Inspectors with the Division of Public Transit's vehicle specification and Quality Assurance provisions of the vehicle contract to assure the manufacturer's compliance with the Division of Public Transit's technical and Quality Assurance requirements. Acceptance, rework, or rejection identification shall be attached to inspected articles. Any articles that are accepted as a result of approved materials review actions will be identified. Articles that have been reworked to specified configurations won't require identification. Articles rejected as unsuitable or scrap will be marked and controlled to prevent installation. Articles that become obsolete as a result of engineering changes or other actions shall be controlled to prevent unauthorized assembly or installation. Unusable articles shall be isolated and then scrapped.

Discrepancies noted by TRC's inspector during assembly will be entered by personnel on a record accompanying the component, subassembly, assembly, or coach, from start of the assembly through the final inspection. Actions shall be taken to correct any discrepancies or deficiencies in the manufacturing processes, procedures, or other conditions that cause articles to be in nonconformity with the requirement of the contract specifications. Inspection personnel will verify the actions and mark the discrepancy record. If discrepancies cannot be corrected by replacing the nonconforming materials, TRC shall notify the Division of Public Transit of the repair method.

ACCEPTANCE TESTS

Responsibility

Fully documented tests will be conducted on each production vehicle following manufacture to determine its acceptability to the Division of Public Transit. These acceptance tests will include pre-shipment inspections and testing by TRC staff.

Pre-shipment Tests

TRC will conduct acceptance tests on each vehicle following completion of manufacture and prior to delivery to the Division of Public Transit. These pre-shipment tests will include visual and measured inspections. The tests will be conducted and documented in accordance with written specifications. Additional tests may be conducted at TRC's discretion to ensure that vehicles have attained the desired quality and meet the requirements in the technical specifications. This additional testing will be recorded on appropriate test forms provided by TRC.

The underfloor equipment will be made available for inspection by the TRC inspector using a pit or vehicle hoist provided by the vehicle manufacturer. A hoist, scaffold, or elevated platform will be provided by the manufacturer to inspect vehicle roofs in a safe and easy manner. Shipment of each vehicle will require written authorization of the TRC inspector. Authorization forms for the release of each vehicle for delivery to the Division of Public Transit will be provided to the manufacturer. An executed copy of the authorization will accompany the shipment of each vehicle.

Inspection – Visual and Measured

Visual and measured inspections will be conducted with the vehicle in a static condition. The purpose of the inspection testing is to verify the overall dimensional and weight requirements, that all required components are included and ready for operation, and that components and subsystems designated to operate with the vehicle in a static condition do indeed function as designed. The results of all tests will be filed with the assembly inspection records for each vehicle before shipment.

STANDARDS AND FACILITIES

SAE

SAE is a technical society dedicated to advancing mobility engineering. Publications include books, Recommended Practices (RPs), individually authored SAE papers, and standards. Standards are used throughout the world for various items such as fasteners, thread sizes, and material properties. SAE publishes standards in three categories including Ground Vehicle Standards, known as J-Reports. TRC inspectors have access to the recently-issued SAE standards and refer to them as needed to ensure that the standards identified in the transit agency's technical specification are being met. Some of the more important SAE standards and RPs to ensure compliance regarding transit buses include:

- Location and Operation of Instruments and Controls. SAE J680
- Driver Hand Control Reach. SAE J287
- Minimum Road Clearance. SAE J689
- Noise Level . SAE J366
- Fuel Economy. SAE J1376
- Fuel Lines. SAE J1149
- Nylon Tubing. SAE J844
- Grease Fittings. SAE J534
- Visibility through steering wheel. SAE J1050a
- Visible and audible warning. SAE J593, SAE J994
- Window Glazing. SAE J673
- Electromagnetic interference or radio frequency interference (EMI/RFI). SAE J1113
- Electrical/electronic shock and vibration requirements. SAE J1455.

FMVSS

FMVSS are safety standards that all vehicle manufacturers are required to comply with through a self-certification process. Although compliance with FMVSS is the responsibility of the bus OEM, TRC will use its understanding of these requirements to ensure that the most obvious of them are being adhered to by the bus builder because full adherence to many of these requirements cannot be determined unless actual tests are conducted or the bus OEM shares test results with the inspector. For example, braking stopping distances required by FMVSS 121 could not be confirmed through a static inspection. Conformance to FMVSS is done as part of FTA's Post-Delivery Buy America Requirement where the Bus OEM is required to sign a certificate stating full compliance.

More than verifying that a certificate has been signed, TRC takes an active role in ensuring that these critical safety standards are being followed. For example, TRC recently conducted an inspection of buses built by a European manufacturer. In that case, the transit agency demanded that proof of FMVSS compliance be part of the bus inspection and acceptance process. The TRC inspector verified through documentation that each of the FMVSS requirements was met by the off-shore builder.

For buses sold through North American firms, however, TRC's standard approach is to use its general understanding of the FMVSS regulations and question the OEM as needed to help ensure compliance. The Table below shows the more common FMVSS requirements that the TRC inspector will verify during production.

FMVSS Regulations

| FMVSS # | BASIC REQUIREMENT |
|----------|---|
| 101 | Controls and displays |
| 102 | Functions and identification of gearbox control |
| 103 | Windshield de-icing and de-misting devices |
| 104 | Every vehicle must have a windshield washer with at least 2 frequencies or speeds |
| 108 | Lighting requirements; recent revision to regulation includes no amber lights under braking or deceleration |
| 111 | External rear view mirror on each side |
| 113 | Hood fastening device |
| 49CFR565 | Vehicle identification number |
| 120 | Tire and rim markings |
| 207 | Driver's seat fastening |
| 208 | Driver's seat belt |
| 217 | Emergency exits; minimum escape area |
| 302 | Materials flammability |
| 40CFR86 | Conformance with EPA exhaust emissions requirements |

Just as TRC will verify that FMVSS requirements are met during production, it is the transit agency's responsibility to ensure that they are not violated during the maintenance and repair of buses. For example, FMVSS requires that the replacement of any FMVSS-certified part or component must continue to meet original certification criteria.

Configuration Control

TRC will maintain on file all engineering drawings, specifications, and other documentation that thoroughly describes a qualified bus that meets all special requirements and options specified by the Division of Public Transit. TRC's quality assurance staff shall verify that each vehicle is manufactured in accordance with these specifications.

Calibrated Measuring and Test

The bus manufacturer will supply TRC with the necessary gauges and any other measuring and testing devices for use by our quality assurance staff to verify that the buses conform to all specification requirements. TRC will perform scheduled review of calibration of torque wrenches and other test and measuring equipment used in the bus manufacturing. These devices must be calibrated at established periods against certified measurement standards that have known valid relationships to national standards.

Equipment Use by TRC Inspector

Factory gauges and other measuring and testing devices shall be made available for use by TRC's inspectors to verify that the buses conform to all specifications. If necessary, the manufacturers' personnel will be made available to operate the devices and to verify their condition and accuracy.

INSPECTION AND TESTING PROCEDURES

The following inspection and testing procedures will be used during the manufacture of the Division of Public Transit's vehicles. Detailed descriptions of the entire inspection process for each area listed below can be found on the following pages.

- Skeleton, or Composite Base Body Unit, or Chassis from Original Manufacturer
- Skeleton Prime, Rustproofing, and Undercoating
- CNG tank assembly
- Suspension Inspection
- Front Mechanical Inspection
- Rear Wheel and Axle Assembly Inspection
- Sheet Metal Assembly
- Mechanical Build-Up
- Paint
- Engine Mechanical Assembly
- Floor Assembly
- Roof Assembly
- Sidewall Assembly
- Seat Inspection
- Wheelchair Lift or Ramp
- Kneeling System, where applicable
- Pit/Hoist Underside Inspection
- Manufacturer Pit Inspection
- Water Vehicle Test
- Pre-Final and Final Interior Inspection Including A/C and Electrical Systems Check
- PLC logic check
- Pre-Final and Final Exterior Inspection
- Total Bus Operations and Vehicle Road Tests
- Completed Bus Inspection



SKELETON

Inspection Frequency — Two times daily

NOTE: Since the skeleton is retained in the weld area for a time the inspector will be able to inspect all welds completed on the day of inspection by visiting the area in the AM and PM including observation of all tests; especially any updated sections.



Tasks

The following items require checking during every inspection:

- Air Tank Brackets*
- Correct Opening of Rear Door*
- Rear Step & Power Step (if installed)
- Wheel Chair Lift Brackets
- Front Door Mounting Plates
- Front Step
- Correct Opening of Front Door*
- Proper Installation of Stainless Fare Box Plates
- Front Destination Tubes
- Roof Plates (flush to bottom of roof)
- Antenna Plate (flush to top of roof)
- Antenna Conduit
- Front Inspection Hatch in Spine
- Driver's Window
- C/S and S/W Windows for correct size*
- Floor Plates, Stanchions, and Seats
- Length of Seat Rails*
- Cross Bracing in Spine
- Box for A-Frame Placed Square
- Dash
- Front Door Valve Bracket
- Front Tow Eyes
- Bumper Brackets
- Steering Column Plate
- Angle Below Driver's Window
- Driver Seat Plates
- Driver's Heater Brackets
- Front Shock Plates
- Front Jack Plates
- Fuel Tank Braces
- Battery Ground Bolt
- Battery Box Plate*
- Angle Below Walls (side skirting)
- Angle on Spine
- Rear Jack Plates
- Fastening of Screen on Rear End
- Surge Tank Mount
- Air Cleaner Hole
- Radiator Mounts (top & bottom)
- Radiator Idler Pulley Bracket (if needed)
- Engine Door Hangers
- Engine Ground Bolt
- Rails for Motor Cradle with Holes Drilled and Cut End
- Dolly Tubes
- Skid Rails
- A/C Shock Brackets
- Water Line Bracket
- Fuel Line Brackets
- Plate Behind Rear Seat Hatch
- Backup Horn Plate
- Starter Relay Plate
- Corners in Spine
- Tow Eye
- Muffler Brackets
- Air Cleaner Mounting Tubes
- Rear Electrical Plate (voltage regulator)
- Plate Above Rear Door (flush to inside)
- Rear Door Mounting Plates
- Hole in Rear Door Tube (for electrical wiring)
- Suspension Jounce Rubber Stop Plates
- Reinforcing Plate in rear of roof
- Rear Seat Plates
- Rear Inspection Hatch
- Grind and Straighten Skeleton

SKELETON PRIME AND RUSTPROOFING

Inspection Frequency — Check all areas of skeleton to be primed for 100% coverage:

- Front
- Street side
- Rear
- Curb side
- Make random checks for rustproofing
- Inspect location of holes for rustproofing
- Inspect for rubber plugs
- Inspect undercoating, if required



Tasks

The following items require checking during every inspection:

- Check for jig fit and ease of removal
- Observe testing (at least one cycle)
- If unable to observe while in area, ask for template check on at least one unit
- Inspect skeleton updated areas ensuring that all required additions have been properly installed and checked by the manufacturer's Quality Control. Special attention will be placed on the testing of these areas.
- Review paperwork for each unit, ascertain that testing was performed and results recorded on proper card, including the name of inspector performing the test

SUSPENSION INSPECTION

Inspection Frequency — 2 times daily (should be done in conjunction with the front mechanical, rear axle assembly, and engine inspections)



Tasks

The following items require checking during every inspection:

- Install front suspension
- Check upper and lower king pin installation
- Check Pitman connection for cotter keys
- Check tie rods for cotter keys and grease fittings
- Check bolts in steering columns and flanges
- Check A-frame installation (welds and alignment)
- Check A-frame mounting plate bolts
- Check bolts and clearance on Transverse Link
- Check rear axle installation (U-bolts tight and join nuts)
- Record serial and model numbers in inspection record file
- Check air bags for proper installation
- Check air brake units for proper installation
- Check hydraulic brake units, if applicable
- Check shocks
- Check axle ratio
- Check rear brake pods

Check units per the manufacturer's Quality Control sheet, ascertaining that all check points from previous operation have been covered and unit has been inspected and approved by area Quality Control personnel.

FRONT MECHANICAL INSPECTION

Inspection Frequency — 2 times daily

Tasks

The following items must be inspected and paperwork reviewed/approved during each visit to the area:



- Check the units, per the manufacturer Quality Control sheet, ascertaining that all check points from previous operations have been covered and area Quality Control personnel have inspected the unit. If in doubt, have spot check made of several torqued fasteners to satisfy reliability requirements.
- Ensure that any and all rework and updating of weld areas was completed prior to assembly.
- Write up any discrepancies to be corrected by the manufacturer.

REAR WHEEL, AXLE ASSEMBLY INSPECTION

Inspection Frequency — One visit to area per shift

Tasks

The following items require checking during each area visit:



- Check at least one unit overall during each area visit and review paperwork, ensuring that all drawings and quality assurance requirements have been met for these sub-assemblies:
 - ⇒ Rear wheel assembly
 - ⇒ Differential
 - ⇒ Brake Assembly
- Request U-bolt torque demonstration on at least one unit, unless torquing can be witnessed while in area.
- Review assembly paperwork, ascertain that serial numbers of all sub-units were recorded and check this information personally.

SHEET METAL ASSEMBLY

Inspection Frequency — 2 times daily (minimum)

Tasks

The following items require checking during every inspection:



- Material correct; edges sealed after cutting
- Fasteners correct, spacing correct, floors sanded after installation, wood filter applied and sanded
- Stiffeners on sidewalls
- Interior sheet metal ceiling panels
- Front interior aluminum and galvanized metals installed
- Rear engine door installed and adjusted, if applicable
- Insulation in roof and sides
- Gas cylinders
- Roof, stretched and spot-welded – 1/2" min. to 3/4" max.
- Roof vents cut out
- Windshield frame corners for form fit
- Fiberglass front and rivet installation
- Sidewalls, cut outs made and spot welded
- Sides around doors and windows
- Wheel housings to be sealed
- Mud flaps – front and rear
- Access doors installed
- Access door alignment correct
- Radio and battery boxes – installation
- All door locks and plates on and adjusted
- Entry door installed and adjusted
- Wiper bracket installation
- Entire exterior of vehicle sanded and checked out at spot welds

MECHANICAL BUILD-UP

Inspection Frequency — 2 times daily

Tasks

The following items must be inspected and the manufacturer's Quality Control must be reviewed:



- Exhaust System
 - ⇒ Muffler
 - ⇒ Brackets
 - ⇒ Insulations
- Fuel System
 - ⇒ CNG Fuel tanks
 - ⇒ Mfg date and capacity label
 - ⇒ CNG fill lines ,securement
 - ⇒ CNG vent system, PRD
 - ⇒ CNG fill and shut off valves
 - ⇒ CNG tank solenoid valves
 - ⇒ Gas detection system
 - ⇒ Low fuel pressure transducer
 - ⇒ Safety label and shut down
 - ⇒ Correct de-fueling port
- Air Brakes & Hydraulic
 - ⇒ Brake hoses: front – elbow at 45 degrees pointed in
 - ⇒ All fittings
 - ⇒ Brake and throttle pedals & valves
 - ⇒ Air dryer
 - ⇒ Rear brake hoses & adjustment
 - ⇒ Door air lines
 - ⇒ All air lines secured
 - ⇒ Check and test air system
 - ⇒ Identification tag on air lines
- Heating System
 - ⇒ Water line installation
 - ⇒ Water valves and fittings in engine compartment
- Power Steering
 - ⇒ Metric to JIC. fitting on steering gear
 - ⇒ O-rings on metric fittings
 - ⇒ Pressure regulator tee
 - ⇒ Bulk head fitting on rear
- Proper line routing and mounting Air Suspension
 - ⇒ Inflate air bags, check for leaks
 - ⇒ Check all valves for proper mounting
 - ⇒ Check all lines for proper routing and mounting
- Cooling System
 - ⇒ Radiator – correct bolt size
 - ⇒ Fins not damaged
 - ⇒ Inspect air start tanks
 - ⇒ Inspect air tanks
 - ⇒ Fan shroud secure
 - ⇒ Uniform fan clearance
 - ⇒ Radiator and CAC sealed
- Air System
 - ⇒ Inspect air start tanks (4 fitted)
 - ⇒ Inspect air tanks
 - ⇒ Inspect line runs, supports, looming
 - ⇒ Inspect valve assemblies and installations

PAINT

Inspection Frequency — 2 times daily

Tasks

The following items must be inspected and paperwork reviewed/approved during each visit to the area:



- Check units per the manufacturer's Quality Control sheet; ascertain that all check points from previous operations have been covered and unit has been inspected by area Quality Control.
- Undercoating (Check for 100% coverage of these area fronts):
 - ◇ Suspension assembly
 - ◇ Street side front wheel housing
 - ◇ Skirt panels
 - ◇ Curbside rear wheel housing
 - ◇ Curbside front wheel housing
 - ◇ All frame members – all four sides
 - ◇ Stepwells – front and rear wheel housing
- These items are not to be undercoated!
 - ◇ Shocks
 - ◇ Brake lines and chambers
 - ◇ Air fittings and brass fittings
 - ◇ Air bag bellows
 - ◇ Slack adjusters
 - ◇ Drains on air tanks
 - ◇ Drive shaft
 - ◇ Exhaust system (free of any undercoating)
- Paint Prep
 - ◇ Inspect bare galvanized for dents, extreme ripples, etc.
 - ◇ Inspect body fill at front fiberglass cap to roof joint
 - ◇ Inspect body fill at interior windshield frame
 - ◇ Inspect body fill at riveted areas – front and rear
 - ◇ Inspect prep of engine doors
 - ◇ Inspect body fill at window posts
 - ◇ Inspect prep of access doors
 - ◇ Inspect roof seams for proper finish
 - ◇ Inspect body fill at rear fiberglass cap to roof
- Paint Primer (Inspect all areas to be primed for interior coverage):
 - ◇ Exterior
 - ◇ Street side
 - ◇ Curb side
 - ◇ Entrance and exit doors
 - ◇ Roof
 - ◇ Inspect exterior painted surface front
 - ◇ Street side lower body
 - ◇ Rear engine door
 - ◇ Curb side lower body
 - ◇ Curb side window area
 - ◇ Front
 - ◇ Rear
 - ◇ Interior painted surfaces front dash area
 - ◇ Curb side skirt panels
 - ◇ Exist door header
 - ◇ Street side window area
 - ◇ Street side skirt panel
 - ◇ Curb side skirt panels
 - ◇ Rear fiberglass cap
 - ◇ Access doors – street side and curb side
 - ◇ Destination sign door
 - ◇ Driver's header
 - ◇ Entrance door header
- Final Paint
 - ◇ Paint scheme, as approved by Property
 - ◇ Letters, numbers, decals to scheme, as approved by Property
 - ◇ Colors to Specifications for Property
 - ◇ Base color
 - ◇ Area around window
 - ◇ Striping

FLOOR ASSEMBLY

Inspection Frequency — 2 times daily (minimum)

Tasks

The following items require checking during every inspection:



Routing

- Check that correct template is being used for the particular property
- Check that all edges are smooth and have been cleaned and sealed (cut edges of plywood), where applicable
- Ascertain that unit has not separated during routing operation
- Check inspection card for the manufacturer's coverage

Floor Assembly

- Check for voids in floor covering
- Check for voids in adhesion
- Check for gaps in seams
- Check for voids in wheel housing covering
- Check for pinched wiring at exits of wires at edges
- Check again for rough edges of routing areas and fit of wheel housing to floor area
- Check inspection card to see that all items show Quality Control coverage and card is attached to the unit



ROOF ASSEMBLY

Inspection Frequency — 2 times daily (minimum)

Tasks

The following items require checking during every inspection:

Lighting Fixtures:

- Check lighting assemblies
- Tightness of all fasteners
- Correct routing of wiring
- Check for damaged covers

Handrails Assembly:

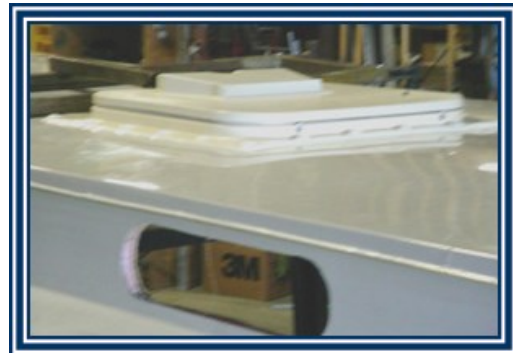
- Check for mating panels color matching
- Check for rough edges
- Check for acceptable finish of metal
- Check for clean assembly
- Check padding and pinning (if applicable)

Roof Hatches:

- Check for proper installation
- Check that they are properly sealed
- Check for proper operation

General Assembly:

- Check for color matching of mating panels
- Check for mating of panels and covers (no gaps or uneven lines)
- Check for tightness of all fasteners
- Check for any rough edges on assembly to prevent injury
- Check secure attachment of inspection card to unit, and that all items show Quality Control coverage
- Check again for rough edges of routing areas and fit of wheel housing to floor area
- Check inspection card to see that all items show Quality Control coverage and card is attached to the unit
- Check specifications for proper colors required by customer



SIDEWALL ASSEMBLY

Inspection Frequency — 2 times daily (minimum)

Tasks

The following items require checking during every inspection:

Wall Panels:

- Inspect sidewall panels and curing of adhesive
- Check paperwork for adhesive date and curing cycle and Quality Control acceptance of all pertinent items

Door Assemblies:

- Check paperwork to see that door assembly was inspected and approved by the manufacturer's Quality Control
- Check mechanical clearance, proper fit and alignment of frame into sidewall

Wall Assembly:

- Check window assembly and swing-out emergency windows
- Check window latches – proper fit and ease of operation
- Check paneling for fit, absence of gaps and color matching
- Check all wiring for proper routing – no chaffing or pinching and correct clearance
- Check all hardware, fasteners and rivets ensuring that entire assembly is secure
- Check all insulation materials for proper installation and coverage
- Check all trimming and fit of same on entire unit – no rough edges on trim
- Check grab-rail assemblies – absence of rough edges at welds (to avoid injuries)
- Check that inspection sheets show coverage of all items calling for inspection and card is securely attached to unit
- Notate required information

SEAT INSPECTION

Inspection Frequency — 2 times daily (should be done in conjunction with stanchion inspections)

Tasks

The following items require checking during every inspection:



- Check seat frame, fabric, color and mounting points for damage
- Check tightness of seat mountings (pedestal and cantilever type)
- Check for appropriate high-to-knee clearance
- Check for appropriate aisle width clearance
- Check number and location of handicap and wheelchair seating positions
- Check handicap and wheelchair seating for appropriate signage
- Check handicap, operator and wheelchair seating for appropriate lap/shoulder belts and operation
- Check all seating for ADA compliance
- Check area designated for wheelchair passengers for sufficient distance from longitudinal seats, wheel housing, stanchions, or other possible obstructions
- Check area designated for wheelchair passengers for correct tie down placement and operation
- Check that flip-up seats used to accommodate wheelchair passengers lock and operate correctly when in upright or normal position
- Check operator's seat for correct make, model, fabric, color, and operation
- Check operator's seat for correct fore/aft travel and clearances



RAMP

Inspection Frequency — 100% on all coaches

Tasks

Inspect vehicles, per manufacturer's guide, including review of all previous paperwork and ensure that every operation has been inspected and approved.

Items to inspect:

- Check mounting and alignment of ramp
- Check to ensure that the master power switch does not activate power unit until:
- Entrance door is open,
- Transmission is in neutral, and parking brake is applied

Deploy Ramp:

- Check speed
- Watch for binding condition and listen for extraordinary noise
- Check all dust covers for proper fastening
- Check safety edges and mats

KNEELING SYSTEM

Inspection Frequency — 100% on all coaches

Tasks

Inspect vehicles, per manufacturer's guide, including review of all previous paperwork and ensure that every operation has been inspected and approved.

Items to inspect:

- Check mounting of kneel valves
- Check kneel operation

PIT/HOIST UNDERSIDE INSPECTION

Inspection Frequency — On-going 100% inspection of every vehicle (time of inspection and other areas must be so arranged with the manufacturer's personnel)

Tasks

The following items must be reviewed during every visit to the pit area:

- Review Quality Control inspection sheets attached to vehicle, ensuring that all items have been inspected, approved and Quality Control stamped
- Make spot checks of torqued hardware and verify that criteria were met
- Record inspection on reporting sheet



MANUFACTURER UNDERSTRUCTURE INSPECTION

The following items are checked during the manufacturer understructure inspection:

- Engine and transmission oil leaks
- Power steering leaks
- Engine coolant leaks
- Exhaust system leaks
- Transmission heat exchanger bolts too long (installation)
- Bottom radiator pipe clearance at engine oil heater exchanger
- Engine cradle welding and engine mounts
- Rear mechanical Panhard rod bracket welding
- Aligning marks on engine cradle and rear mechanical
- Engine cradle
- Air bag clearance
- Air drier clearance and air drier heater element wire
- Leveling valve links – front & rear
- Mud flap installation – front & rear
- Inspect U-joint clearance and U-joint for looseness and freedom of travel
- Check that proper drive shaft guards are installed
- Inspect all air, oil coolant and power steering lines for proper routing and that each is secured with proper sized clamps to prevent chaffing
- Check battery cable routing and protection by clamping to prevent chaffing in engine compartment, over fuel tank and at battery in reserve and service position
- Voltage regulation wire secured with proper sized clamp
- Slack adjusters rear adjusting link clearance
- Rear axle slack grease fitting orientation
- Tightness of all wire connections including voltage regulator
- Front oil seals
- Air line water traps and leaks
- Front axle U-bolt fit and nut accessibility at radius rod brackets
- Radius rods
- Drag link end pinch bolts tight and studs keyed
- Steering gear input shaft U-joint alignment, pinch bolts tight and properly greased
- Brake line clearance with wheels turned left/right; and brake chamber lines and hoses
- Brake operation service and park
- Air reservoir installation and drain cocks
- Spot check torque on various bolts, such as radius rods, pinch bolts, body-to-mechanical bolts.
- Defroster water lines
- Tightness of all bottom door lugs
- Side marker light wires secured
- Vehicle properly greased
- Check for proper application of seal on pitman arm at steering gear output shaft
- Check tightness of brake chamber push rod clevis yoke jam nuts

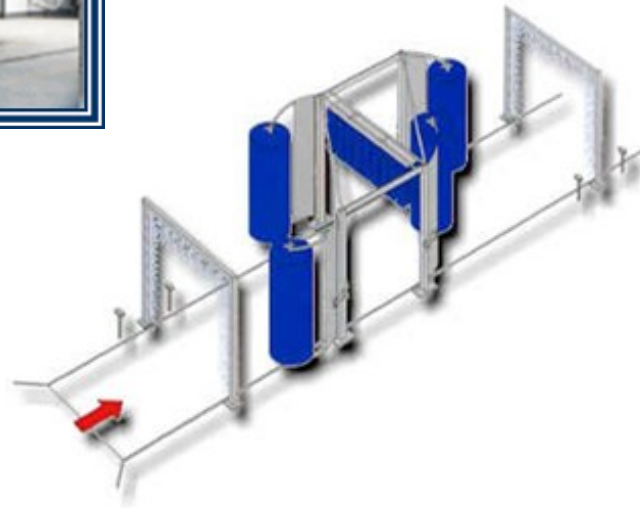
VEHICLE WATER TEST

Inspection Frequency — Every vehicle

Tasks

Paperwork for all tests must be completed at the time of test.

- Review Quality Control inspection reports and note questionable areas. Do not hesitate to contact the Quality Control supervisor and inspector for their explanation. This applies especially when several vehicles are found in a row with no leaks, which is very unlikely.
- Record all vehicles reviewed on reporting sheet
- If possible, obtain a copy of the test report sheet for records
- Record discrepancies as needed
- Conduct independent water test prior to buy-back



PRE-FINAL AND FINAL INTERIOR INSPECTION INCLUDING A/C AND ELECTRICAL SYSTEMS CHECK

Inspection Frequency — 100% all vehicles

Tasks

The following items require checking during every inspection:

- Inspect vehicle per the manufacturer's guide include review of all previous paperwork assuring that every operation has been inspected and approved prior to paint finishing.
 - Ensure that all checkpoints have been stamped by Quality Control and that manufacturer's initials are in place.
 - Record discrepancies as needed.
- Interior inspection – including Functional Check**
- Lift or ramp, kneeling operations, power step, and warning systems
 - Windshield interior enclosure installation
 - Wiper and washer operation
 - Horn operation and centering of steering column before driver's seat
 - Windshield visor stowed front and side
 - Headlight dimmer switch operation
 - Right and left turn indicator and hazard light operation
 - Blower motor, driver's heater and defroster operation
 - Driver's light operation
 - Oil pressure/temperature gauges mounted in engine compartment, voltmeter gauge 12/24 mounted in dash
 - Check air gauge ensuring that primary/secondary PSI indicators are same when compressor stops pumping at designated cutout pressure
 - Lights and warning buzzer for hot engine, low oil pressure and low air pressure
 - Pump down with brake pedal to observe low air warning buzzer on off PSI
 - With engine off, deplete air reservoirs to 15 PSI. Start engine to determine at what PSI shifting will occur. The pressure protection valve is to be set at 85 PSI +/- 5 PSI
 - Check for wires fouling at bottom of steering column
 - Brake and accelerator pedal to have removable rubber pads
 -
 - Check for fouling of operators' door control handle on console
 - Push check buttons on instrument panel to check electronic read-out bulbs
 - Defroster motor operation high and low speed
 - Check for engine fast idle operation and transmission not to shift into speed at fast idle
 - Starter not to operate at engine idle
 - Driver's seat longitudinal and vertical adjustments
 - Sharp edges in and around driver's seat
 - Check for driver's damaged barrier
 - Check that screws are captive in front destination sign door
 - Check door master switch
 - Check front, side, and dash destination sign operation and master switch
 - High voltage warning decals at all ballasts
 - Passenger door operation and air damp valve operation
 - Passenger door leaves – tightness when closed
 - Check for fouling air lines and wires in entrance door operation
 - Check steering column angle and height adjustment
 - Driver's fresh air bents for proper operation
 - Check wheelchair restraint systems for proper operation
 - Passenger signaling/annunciator systems and interior speakers for proper operation
 - Check passenger heating and A/C systems for temperature levels and distribution
 - Check all push-out windows for operability, correct tint, and decals
 - Fire extinguisher and safety equipment
 - Check operation of any special interlocking systems and lights

PRE-FINAL AND FINAL EXTERIOR INSPECTION

Inspection Frequency — 100% all vehicles

Tasks

The following items require checking during every inspection:

- Record discrepancies as needed

Exterior Inspection:

- Lights, marker, stop, and turn signals
- Paint, scheme as approved by property
- Letters, numbers and decals
- Color to specification including wheels
- Fuel fill valve
- Batteries
- Tires
- Quick disconnect
- Schrader air supply

Check to make sure the following items are shipped with the vehicle:

- Manuals - parts, maintenance, and operators
- All keys – ignition, door, etc.



TOTAL BUS OPERATIONS AND VEHICLE ROAD TESTS

TRC will conduct a road test on each bus for a minimum of 20 miles with the TRC inspector on board. Every operational system on the bus will be checked while on the road test.

Inspection Frequency — During pre- and final inspections and buy-back procedures

Tasks

The following items require checking during every inspection:

- Inspect operation and locking of egress windows, and warning buzzer/light, if installed
- Inspect operation of tip-in sliding window sections including the driver's window
- Check operation of flip-seats and operating decals
- Check operation of w/c securement belts and spools
- Check operation of w/c passenger belts and harnesses and retractors
- Check passenger signaling system
- Tape, cords, buttons at passenger locations
- Chimes for good sound
- Dash lights (telltales)
- "Stop requested" sign for correct function with doors
- Check interior lighting including doorway, driver, and farebox lights
- All working
- Correct operation with doors open, day run, night run, and park selected
- Operation of driver's override
- PA System
- Check operation of all interior speakers
- Check operation of the exterior speaker and switch
- Check installation and operation of the gooseneck microphone
- Check mirror operation
- Adjustment up and down and side to side
- Heating
- Check wipers and washer
- All speeds and intermittent
- Washer nozzles spray coverage
- Blades free from interference and park properly
- Check horn for tone(s) and button not sticky
- Check steering
- Wheel spokes properly aligned when straight ahead
- Steering wheel rim pull within specification
- Wheel free play acceptable
- Steering self-centers on road
- Check cruise control (if installed) for proper operation
- Operate doors and check
- Interlocks
- Sensitive edges
- Speed sensor for brake operation
- Overlap and sealing of doors when closed
- Cycle accessibility systems
- Check interlocks
- Check kneeling
- Check ramp

TOTAL BUS OPERATIONS AND VEHICLE ROAD TESTS (CONT.)

- Check driver's controls and instruments
- Within seated reach
- Diagnostic telltales working and rear proximity warnings functioning and gauges and dials operating properly
- Seat controls working
- Check exterior lighting
- High/low beams
- All marker and cluster lights
- Doorway lights
- Brake and rear lights
- Back up lights
- Hazard and turn signals working correctly
- Any special lights operating to specifications
- Engine, powertrain, suspension
- Systems are leak free
- Leveling valves set and secure, ride height correct
- Engine fast idle operating correctly (neutral only)
- All functional fluid levels are correct
- Air cleaner restrictor ok
- Rear run panel operates properly
- Engine and transmission operation for smooth running and shifting, and acceleration performance per specification
- HVAC System
- Operate individual systems at all speeds and check function, absence of unwanted noises and vibrations
- Check for temperature and distributions and drafts
- Check driver's area for proper operation of defrost and heat settings
- Check for system leaks
- Braking Systems
- Check satisfactory service and emergency brake operation (maximum braking from 20 mph)
- Certified weight slip for curb weight on whole bus and/or axles as specified
- Turning radius, if required by property
-

RETESTING

During the road test, all observed defects will be recorded by TRC's inspector on the test forms. The bus will be retested when defects are corrected. This process will continue until repairs or adjustments are no longer needed.

COMPLETED BUS INSPECTION

Following final inspection and function tests, TRC's resident Q/A inspector will perform a "Completed Bus Inspection". The resident inspector will note all discrepancies on the Completed Bus Inspection Form and submit the form to manufacturer for disposition. The inspector will subsequently re-inspect the bus for all noted discrepancies on the form to ensure all repairs were implemented and signed off on. The completed document will be submitted to the Division of Public Transit.

TRC will provide qualified professional personnel for the on-site inspection and all necessary documentation to support acceptance of the vehicles per Resident Inspector provisions of **CFR Title 49, 663.37**; Post-Delivery Purchaser's Requirements Certification.

The Resident Inspector shall certify that the following final assembly items meet specifications during the construction of the buses: the installation and interconnection of the engines, transmissions, axles, including the cooling and braking systems; the installation of the pneumatic and electrical systems, door systems, passenger seats, passenger grab rails, destination signs, wheelchair lifts; HVAC, road testing, final inspection, repairs and preparation of the vehicles for delivery.

APPENDIX B

Sample Bus Inspection Forms





Defect Sheet

| | |
|----------------------------|------------------|
| Coach Purchaser: | Date: |
| Coach Manufacturer: | Location: |
| Inspector: | |
| VIN # | Fleet #: |

| Item | Defect Description | Resolution | | |
|------|--------------------|------------|--------|--------|
| | | Repair | Accept | Reject |
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Daily Log/Report

| | | | |
|----------------------------|--|------------------------|--|
| Coach Purchaser: | | Date: | |
| Coach Manufacturer: | | Location: | |
| Inspector: | | | |
| Arrival Time: | | Departure Time: | |

| Item | Defect Description | Resolution | | |
|------|--------------------|------------|--------|--------|
| | | Repair | Accept | Reject |
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Pre-Delivery Vehicle Acceptance Inspection

| | |
|----------------------------|-------------------------|
| Coach Purchaser: | Inspection Date: |
| Coach Manufacturer: | |
| OEM/Year: | |
| Chassis VIN: | |
| Production ID: | |
| Inspector: | |

Approved for acceptance:

Signature
Print Name
Date

| Area | Pass (P) • Defective (D) Corrected (C) | | | Item Inspected | Curb Side (CS) • Road Side (RS) Front (F) • Rear (R) | | | | Comments |
|---------------------------|---|---|----------|----------------------|---|----|---|---|----------|
| | P | D | C | | CS | RS | F | R | |
| EXTERIOR LIGHTING | | | | Headlights | | | | | |
| | | | | Back-up Lights/Alarm | | | | | |
| | | | | Tail Lights | | | | | |
| | | | | Turn Signals | | | | | |
| | | | | Markers | | | | | |
| | | | Flashers | | | | | | |
| WHEELS & TIRES | | | | Tire Pressure | | | | | |
| | | | | Spare Tire | | | | | |
| | | | | Jack & Wrench | | | | | |
| BODY | | | | Passenger Door | | | | | |
| | | | | Ramp Door | | | | | |
| | | | | Rear Hatch | | | | | |
| | | | | Panels, Exterior | | | | | |
| | | | | Paint/Finish | | | | | |
| | | | | Decals psi | | | | | |
| | | | | Windows | | | | | |
| | | | | Mirrors, Exterior | | | | | |
| ENGINE COMPARTMENT | | | | Check Oil | | | | | |
| | | | | ATF | | | | | |
| | | | | Coolant | | | | | |
| | | | | Labels | | | | | |
| | | | | Battery | | | | | |
| | | | | Wires | | | | | |
| | | | | Hoses & Belts | | | | | |
| | | | | Fuel Lines | | | | | |
| UNDERNEATH | | | | Fluid Leaks | | | | | |

| Area | Pass (P) • Defective (D) Corrected (C) | | | Item Inspected | Curb Side (CS) • Road Side (RS) Front (F) • Rear (R) | | | | Comments |
|----------------------|---|---|--------------------|---------------------------------|---|----|---|---|----------|
| | P | D | C | | CS | RS | F | R | |
| | | | | Exhaust System | | | | | |
| | | | | Fuel Tank | | | | | |
| | | | | Fuel Lines | | | | | |
| | | | | Suspension | | | | | |
| | | | | Rust Proofing | | | | | |
| INTERLOCKS | | | | Ramp Door/Shifter | | | | | |
| | | | | Green Light | | | | | |
| | | | | Instruction Decal | | | | | |
| INTERIOR LIGHTING | | | | Dome Lights | | | | | |
| | | | | Driver's | | | | | |
| | | | | Instruments/Dash | | | | | |
| SEATING & SECUREMENT | | | | Driver Seat | | | | | |
| | | | | Passenger Seat | | | | | |
| | | | | Rear Bench Seat | | | | | |
| | | | | Wheelchair Tie-Down Straps | | | | | |
| | | | | Wheelchair Passenger Seat Belts | | | | | |
| | | | | Floor Receivers | | | | | |
| | | | | OEM Seat Belts | | | | | |
| ROAD TEST | | | | Ramp Operation | | | | | |
| | | | | Emergency Brake | | | | | |
| | | | | Brakes | | | | | |
| | | | | Engine | | | | | |
| | | | | Transmission | | | | | |
| | | | | Steering | | | | | |
| | | | | Suspension | | | | | |
| | | | | Rattles | | | | | |
| | | | | Air Conditioner | | | | | |
| | | | | Heat | | | | | |
| | | | | Windshield Wipers | | | | | |
| | | | | Horn | | | | | |
| | | | | Taxi Light and Switch | | | | | |
| | | | | First Aid Kit | | | | | |
| | | | | Fire Extinguisher | | | | | |
| | | | Warning Reflectors | | | | | | |



Release for Delivery

| | |
|----------------------------|-------------|
| Coach Purchaser: | |
| Coach Manufacturer: | |
| Assembly Location: | |
| Coach Number | VIN: |
| Inspector: | |

The vehicle listed above has passed all required inspections and hereby is authorized to be released for delivery to the purchaser.

TRC Inspector - Signature *Print Name* *Date*

Manufacture's Representative – Signature *Print Name* *Date*

Comments:

| | |
|----------------------------|-----------------------|
| Coach Purchaser: | |
| Coach Manufacturer: | Test Location: |
| Inspector: | Coach #: |

The following items should be inspected on each coach:

| Item | Requirement | Inspection Description | Result | Date | Notes |
|-----------------------------|---------------------------------------|--|--|------|-------|
| 1. ENGINE | --- | Record low, fast and high idle speeds | Low: ____ Fast: ____ High: ____ | | |
| 2. SERVICE BRAKES | Stopping Distance | Verify function and indicator; Check for pulling to either side | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 3. PARKING BRAKE | --- | Verify indicator and no movement | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 4. TURNING EFFORT | Steering Wheel Torque | Check effort with coach stopped | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 5. TURNING RADIUS | Not to Exceed ____ at Corner of Body | Verify turning radius in both directions | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 6. ACCELERATION | ____ rate from/to ____ mph | Verify acceleration on smooth road | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 7. RESONANCE | Absence of Audible/Visible Vibrations | Operate coach at various speeds; Check for vibrations and rattles | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 8. WINDSHIELD WIPERS | Evenly Deposited Wash Fluid | Operate coach at safe speed over 40 mph; Check coverage, parking position, and wiper frequency | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 9. POWER PLANT | --- | Check for leaks under coach and in engine compartment; Check for abnormal noises | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 10. HVAC | Interior Temperature | Operate system, check internal and ambient temperatures | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 11. DOOR CONTROL | Accelerator and Brake Interlocks | At speeds less than 10mpn, verify accelerator and brake interlocks with door open | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 12. GENERAL | --- | During testing, observe any abnormalities in ride and handling of coach | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |



Speed Memo

| | |
|----------------------------|--------------|
| Coach Purchaser: | Date: |
| Coach Manufacturer: | |
| Location: | |
| Inspector: | |

| |
|-----------------|
| TO: |
| SUBJECT: |
| MESSAGE: |
| REPLY: |



Visual Inspection

| | |
|----------------------------|-----------------------|
| Coach Purchaser: | |
| Coach Manufacturer: | Test Location: |
| Inspector: | Coach #: |

The following items should be inspected on each coach:

| Item | Requirement | Inspection Description | Result | Date | Notes |
|------------------------------------|--|--|--|------|-------|
| 1. CURB WEIGHT | Maximum curb weight of ____ lbs. | Measure on certified scale | Weight ____ | | |
| 2. FMVSS STICKERS | Affixed to vehicle | Locate Sticker | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 3. FINISH & COLOR | Smooth body surfaces & paint | Visually inspect all surfaces for flaws | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 4. INTERIOR PANEL FASTENING | Absence of rough edges or surfaces | Visually inspect for proper installation | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 5. TOWING DEVICES | Provision of towing eyes (front/rear) | Verify presence of towing eyes | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 6. DOOR CONTROL | Opening Time ____ sec | Verify door opening time frame | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 7. INTERIOR LIGHTING | Lighting operable without engine | Switch on all interior lights | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 8. EXTERIOR LIGHTING | All vehicle lights operable | Switch on & verify lamps are on | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 9. FUEL TANK | Fill rate & filler location | Inspect filler for easy access and check fill rate | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 10. CHASSIS | Welds, axles, suspension, steering, wheels, & brakes | Inspect for leaks/interference; Check fluid levels, welds, under-coating air lines, brake slack and lug nuts | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 11. ELECTRICAL | Wiring & junction boxes | Inspect for loose/stretched wires | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 12. BATTERIES | Secured & polarized wiring access for jump start | Inspect compartment and jumper cable access | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 13. HVAC | Capacity & performance | Operate AC, check compressor, condenser, flow and temperature | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 14. WHEELCHAIR ACCESS | Clear lift or ramp access & securement area | Operate lift or ramp, inspect operation, measure areas | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |
| 15. POWER PLANT | Mounting & arrangement | Check for loose lines, leaks, and noises; Check fluid levels, belt alignment, and cap fit | Pass <input type="checkbox"/> Fail <input type="checkbox"/> | | |

APPENDIX C

Sample Weekly Report





WEEKLY BUS INSPECTION SUMMARY REPORT

Date: November 16, 2017
Agency: City of Edmonton (Spruce Grove)
Contact: Patrick Inglis and Rick Mazoleski
TRC Project Manager: Tara Howard; trc@trcengineering.net or 407.977.4500 x. 20
TRC Inspector: Donald Wells; dnzwells1951@gmail.com or 434.549.1832
Manufacturer: New Flyer of America, St. Cloud, Minnesota
Description: (6) 40-foot transit buses, XD40 Model

SNAPSHOT VIEW OF INSPECTIONS – CURRENT STATIONS

| | |
|--------|--|
| UNIT # | STATION 2200 – FRAME WASH |
| UNIT # | STATION 2400 – GRIT BLAST |
| UNIT # | STATION 2600 – PRIME |
| UNIT # | STATION 2800 – SEAL |
| UNIT # | STATION 3200 – STERRING BOX, PLYWOOD FLOOR |
| UNIT # | STATION 3400 – AIR TANKS P/S LINES |
| UNIT # | STATION 3600 – EXT PANELS HARNESSSES INSULATION |
| UNIT # | STATION 3800 – CORROSION |
| UNIT # | STATION 4200 – ROOF, DRIP RAILK, MUFFLER, FRT MASK, RR CROWN |
| UNIT # | STATION 4400 – W/C RAMP. BASEPLATE, ENG ISUL, INT PANELS |
| UNIT # | STATION 4600 – FLOOR COVERING,ENG COMP, BOOSTER PUMP LINES |
| UNIT # | STATION 4800 – WIPER MOTOR, HORN, FUSE BOX, ENG HARNES |
| UNIT # | STATION 5200 – U/BODY FUEL LINES, LEVEL VLVS, AIR DRYER |
| UNIT # | STATION 5400 – INST PANELS, AIR LINES, STERRING COL, DASH |
| UNIT # | STATION 5600 – INT PANELS, SIDE CONSOLE, EXIT DOORS |
| UNIT # | STATION 5800 – DOORS, SPEAKERS LIGHT RAILS, CLOSETS |
| UNIT # | STATION 6000 – FLOOR SEAL |
| UNIT # | STATION 6200 – PREP |
| UNIT # | STATION 6400 – PAINT |
| UNIT # | STATION 6600 – MASK |
| UNIT # | STATION 6800 – PAINT |
| UNIT # | STATION 7200 – DEMASK |
| UNIT # | STATION 7400 – EXT LIGHTS, WINDOWS, WIPERS, A/C, EXT DOORS |
| UNIT # | STATION 7600 – AXLES, STOP REQ, FIREW HTRS, D BRR, GRABRAILS |
| UNIT # | STATION 7800 – RAD BOX, SC PANEL, WHEELS, SMOKE TEST |

| | | |
|--------|-------------|---|
| UNIT # | | STATION 8200 – DEST SIGNS, INT MIRRORS, EMG PREP, DASH |
| UNIT # | | STATION 8400 – DRIVE SEAT, ENGINE DROP, MORRORS, CHIME CORD |
| UNIT # | | STATION 8600 – ENGIN FINISH, BATT COVER, STANCHIONS |
| UNIT # | | STATION 8800 – SEATS STANCHIONS |
| UNIT # | | STATION 9000 – ELEC. CHECKS, BIKE RACK |
| UNIT # | | STATION 9100 – PAINT PREP |
| UNIT # | | STATION 9200 – PAINT |
| UNIT # | 1602 | STATION 9200 – DECALS |
| UNIT # | | STATION 9400 – FENDERS, TURN SIGNLS, AD FRAMES |
| UNIT # | | STATION 9500 – WATER TEST |
| UNIT # | 1601 | STATION 9600 – ALIGNMENT, HUBO |
| UNIT # | 1600 | ROAD TEST |
| UNIT # | | CAD |

COACHES RELEASED FOR DELIVERY

None.

ISSUES TO REPORT

TRC's inspector was just told by New Flyer's CPM (Shelley Norvell) that only three of the six units are being built this year and the remaining three are being pushed out to next year. Shelley is going to provide TRC with an updated production schedule.

PICTURES





APPENDIX D

Sample Pre-Award Buy America Audit Report



The City of Green Bay

Pre-Award Buy America Audit
Four (4) 40' Low Floor Transit Buses
(S/N 187388)

Gillig
Hayward, CA

TRC Engineering Services, LLC
5840 Red Bug Lake Road
Suite 165
Winter Springs, FL 32708
Phone: (407) 977-4500
Fax: (407) 977-7333
tranrc@earthlink.net

September 21, 2015

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| FMVSS Certification | |
| Pre-Award FMVSS Compliance Certification | |
| Pre-Award Purchaser's Requirements Certification | |
| Pre-Award Buy America Compliance Certification | |

Pre-Award Buy America Audit

Gillig – Hayward, California

INTRODUCTION

The City of Green Bay / Metro Transit selected Gillig of Hayward, California as the preferred bidder to manufacture four (4) 40' low floor transit buses. Federal Transit Administration (FTA) regulations require the City of Green Bay to complete a pre-award audit of the bus manufacturer to determine if Gillig complies with the Buy America requirements outlined in 49 CFR Part 661 and Part 663.

To complete this pre-award audit, the City of Green Bay has contracted with Transit Resource Center (TRC) to act as its agent concerning the Buy America requirements. This report constitutes TRC's findings from its audit investigation.

PRE-AWARD BUY AMERICA REQUIREMENTS

The purpose of a Pre-Award Buy America Audit is to determine if the selected manufacturer of transit vehicles has on file a documented plan for how it will meet the FTA Buy America requirements outlined in 49 CFR Part 661 and Part 663. It is important to recognize during the audit that the manufacturer's plan for meeting the Buy America requirements is indeed only a plan and not a finished process. The auditor must recognize that the manufacturer's final product may deviate from its pre-award plan, and that such deviation from the plan may be substantive and could potentially result in the manufacturer's failure to actually meet FTA Buy America requirements.

To meet FTA regulations, a Pre-Award Buy America audit must include the following elements:

- 1) A Buy America certification, as described in Section 663.25 of 49 CFR Part 663;
- 2) A Purchaser's Requirements Certification, as described in Section 663.27 of 49 CFR Part 663; and
- 3) A manufacturer's Federal Motor Vehicle Safety Standards (FMVSS) certification, as described in Section 663.41 or Section 663.43 of 49 CFR Part 663.

In this instance, the third-party contractor, TRC, is chiefly responsible for certifying that the manufacturer, Gillig, has a plan that meets the requirements in item 1 above, and for reviewing first-hand the manufacturer's FMVSS certification, in item 3. The City of Green Bay has the responsibility for issuing the Purchaser's Requirements Certification described in item 2 above.

AUDIT METHODOLOGY

The audit involved a three-step review process:

Step 1 – A comprehensive review of Gillig's manufacturing facilities with a focus on the final assembly process to determine if it follows FTA requirements for final vehicle assembly within the United States.

Step 2 – A review of Gillig's organizational plan and quality assurance program.

Step 3 – A review of Gillig's FMVSS certificate as well as their confidential records to determine whether Gillig has an acceptable plan for meeting FTA domestic content requirements as outlined in 49 CFR Part 661 and Part 663.

FINDINGS

In the following section TRC describes its findings for the audit elements that are the responsibility of the third-party auditor.

PRE-AWARD BUY AMERICA CERTIFICATION

Final Assembly

Final assembly, at a minimum, must include the following:

- the installation and interconnection of the engine, transmission, axles, including the cooling and braking systems;
- the installation and interconnection of the heating and air conditioning equipment;
- installation of pneumatic and electrical systems, door systems, passenger seats, passenger grab rails, destination signs, wheelchair lifts; and
- road testing, final inspection, repairs and preparation of the vehicles for delivery.

TRC's review of the manufacturing process at Gillig found that the company continues its long-standing and well-accepted practice of conducting manufacturing and final assembly of Gillig buses in its plant in Hayward, California.

Total assembly of the transit buses, from frame rails through road testing, will occur at the Gillig plant in Hayward, California.

Based upon TRC's review of Gillig's facilities, discussions with their management, and a review of its documentation, it is TRC's opinion that Gillig currently has a bus assembly process that meets all of the FTA's Buy America regulations pertaining to final assembly within the United States.

Domestic Content

TRC conducted an audit of confidential records of Gillig. Specifically, TRC's examination focused on the list of component parts that were included in the manufacturer's bid as submitted to the City of Green Bay. TRC's audit of domestic content to be used by Gillig included a verification of the name of the component manufacturer and the percentage of U.S. content.

Gillig considers the above information to be proprietary and confidential in nature, and must not be disclosed. Based upon TRC's examination of Gillig's confidential records, TRC certifies that Gillig has a documented and verifiable plan for meeting the domestic contents requirements of the FTA as outlined in 49 CFR Part 661 and Part 663 for the future production of transit vehicles for the City of Green Bay.

FMVSS REQUIREMENTS

Gillig falls under the requirements of 49 CFR Part 661, which mandates compliance by the manufacturer with Federal Motor Vehicle Safety Standards (FMVSS). This essentially is a self-certification process. TRC examined first-hand Gillig's certification of compliance with FMVSS regulations, a copy of which is attached in the appendix to this report. Accordingly, TRC finds that Gillig is in compliance with this FTA requirement.

SPECIFICATION COMPLIANCE

In addition to examining Buy America requirements, FTA regulations call for the auditor to ensure that buses being contracted for will be the same product described in the buyer's specifications. A review was made of the major items identified in the specifications to ensure compliance.

SUMMARY FINDING

Based upon a review of Gillig's production capability, production methods, location of final assembly, domestic contents, compliance with FMVSS requirements, and compliance with technical specifications, TRC finds that Gillig meets FTA Pre-Award Buy America Audit requirements for the production of the buses covered in this purchase as described in the introduction above for the City of Green Bay. TRC also finds that Gillig plans to comply with all of the City of Green Bay's technical specifications.

Certified this 21st day of September, 2015.

TRANSIT RESOURCE CENTER




Edward W. Pigman
President

Appendix

**FEDERAL MOTOR VEHICLE
SAFETY STANDARDS CERTIFICATION**

This is to certify that the Gillig transit bus model(s) proposed, complies (comply) with all applicable Federal Motor Vehicle Safety Standard as required by the F.T.A. and the D.O.T., and described in Title 49 CFR Chapter V, part 571-FMVSS, last revised on October 1, 1998.

GILLIG LLC

By 
JOSEPH POLICARPIO

TITLE VICE PRESIDENT

DATE SEPTEMBER 10, 2015

PRE-AWARD FMVSS COMPLIANCE CERTIFICATION

As required by Title 49 of the CFR, Part 663 – Subpart D, **the City of Green Bay** certifies that it received at the pre-award stage, a copy of **Gillig’s** self-certification information stating that the buses, four (4) 40' low floor transit buses, will comply with the relevant Federal Motor Vehicle Safety Standards issued by the National Highway Traffic Safety Administration in Title 49 of the Code of Federal Regulation, Part 571.

Date: _____

Signature: _____ Title: _____

PRE-AWARD PURCHASER’S REQUIREMENTS CERTIFICATION

As required by Title 49 of the CFR, Part 663 – Subpart B, **the City of Green Bay** certifies that the buses to be purchased, four (4) 40' low floor transit buses from **Gillig**, are the same product described in the recipient’s solicitation specification and that the proposed manufacturer is a responsible manufacturer with the capability to produce a bus that meets the specifications.

Date: _____

Signature: _____ Title: _____

PRE-AWARD BUY AMERICA COMPLIANCE CERTIFICATION

As required by Title 49 of the CFR, Part 663 – Subpart B, **the City of Green Bay** is satisfied that the buses to be purchased, four (4) 40' low floor transit buses from **Gillig**, meet the requirements of Section 165(b)(3) of the Surface Transportation Assistance Act of 1982, as amended. The recipient , or its appointed analyst **Transit Resource Center**, has reviewed documentation provided by the manufacturer, which lists (1) the proposed component and subcomponent parts of the buses identified by manufacturer, country of origin, and cost; and (2) the proposed location of the final assembly point for the buses, including a description of the activities that will take place at the final assembly point and the cost of the final assembly.

Date: _____

Signature: _____ Title: _____

APPENDIX E

Sample Post-Delivery Buy America Audit Report



The City of Colorado Springs

Post-Delivery Buy America Audit
Five (5) 35' Low Floor Transit Buses
(187932 - 187936)

Gillig
Hayward, CA

SAMPLE



TRC Engineering Services, LLC
5840 Red Bug Lake Road
Suite 165
Winter Springs, FL 32708
Phone: (407) 977-4500
Fax: (407) 977-7333
tranrc@earthlink.net

April 19, 2016

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| Post-Delivery FMVSS Compliance Certification | |
| Post-Delivery Purchaser’s Requirements Certification | |
| Post-Delivery Buy America Compliance Certification | |

Post-Delivery Buy America Audit

Gillig – Hayward, California

INTRODUCTION

The City of Colorado Springs selected Gillig in Hayward, California as the manufacturer of five (5) 35' low floor transit buses. The City of Colorado Springs procured these buses using a combination of FTA and state funds. FTA regulations require the City of Colorado Springs to conduct a post-delivery audit of the manufacturer of new buses to determine if the manufacturer complied with the Buy America requirements as outlined in 49 CFR Part 661 and Part 663.

The City of Colorado Springs selected TRC Engineering Services as its agent to carry out the Post-Delivery Buy America Audit of Gillig. This report presents the findings of that audit.

POST-DELIVERY BUY AMERICA REQUIREMENTS

The Federal Transit Administration (FTA) requires that grantees purchasing passenger vehicles with FTA funds must certify that the manufacturer producing the passenger vehicles meets the requirements of 49 CFR Part 661. This certification must be carried out in accordance with the audit requirements described in 49 CFR Part 663. The elements of a post-delivery audit are:

- a) A **Buy America Certification** that at least sixty percent (60%) of the component and sub-component parts of the vehicle will be of U.S. origin; and that final assembly location of the vehicle is within the United States.
- b) A **Purchaser's Requirements Certification** to ensure that the buses meet the contract specifications.
- c) A manufacturer's **Federal Motor Vehicle Safety Standards (FMVSS) Certification**.

AUDIT METHODOLOGY

The audit involved a three-step review:

Step 1 – Review of Gillig's physical plants and manufacturing process to determine if it followed FTA requirements for final vehicle assembly within the United States

Step 2 – Sending a resident inspector to the manufacturer's final assembly location to verify quality control measures, and conduct in-plant inspections and road tests to verify that Gillig is a responsible manufacturer that met contract specifications

Step 3 – A review of confidential records to determine:

- a) if the buses manufactured by Gillig were the same as the ones specified by the City of Colorado Springs in its bid solicitation;
- b) if Gillig had an acceptable pre-award plan to meet Buy America requirements for domestic content and final assembly;
- c) if Gillig had succeeded in meeting Buy America requirements when it assembled the buses; and
- d) if Gillig had on file a Federal Motor Vehicle Safety Standards certificate for these manufactured buses.

FINDINGS

Capability

TRC Engineering Services determined that Gillig is an organization devoted substantially to the manufacturing of buses used in public transit service. The Gillig facility in Hayward, California is well equipped with the machinery and tools needed to build buses. Additionally, Gillig has a large and highly skilled work force with experience in the manufacturing of buses used for transit service. Accordingly, TRC Engineering Services finds that Gillig meets FTA requirements as a responsible party capable of producing buses for transit use.

Final Assembly

Final assembly, at a minimum, must include the following:

- the installation and interconnection of the engine, transmission, axles, including the cooling and braking systems;
- the installation and interconnection of the heating and air conditioning equipment;
- installation of pneumatic and electrical systems, door systems, passenger seats, passenger grab rails, destination signs, wheelchair lifts;
- road testing, final inspection, repairs and preparation of the vehicles for delivery.

TRC Engineering Services observed the full manufacturing processes and final assembly at Gillig in Hayward, California, USA. All assembly work at Gillig is done within the United States.

Based upon this review, TRC Engineering Services finds that Gillig complied with Buy America requirements for final assembly of the City of Colorado Springs's buses within the United States.

Domestic Content

TRC Engineering Services reviewed Gillig's confidential records related to the cost of materials for the buses to be sold to the City of Colorado Springs. TRC Engineering Services conducted a firsthand examination of the list of major sub-components and materials that Gillig used in the production of buses for the City of Colorado Springs.

The major domestic vendors to Gillig included:

| | | |
|------------------|--------------------|----------------------|
| Cummins | Thermo King | Allison Transmission |
| American Seating | Meritor Automotive | Compass Components |

Additionally, TRC Engineering Services examined the Buy America Certification from each of the major U.S. suppliers to ensure that the content of their components, sub-components and materials met FTA requirements that at least sixty percent (60%) of the costs are of U.S. origin.

Gillig considers the total material cost per bus to be proprietary and confidential. Based upon our private review of these records, TRC Engineering Services finds that Gillig has met the FTA's requirements that a minimum of sixty percent (60%) of the cost of components and sub-components are of U.S. origin.

Purchaser's Requirements Certification (Specification Compliance)

TRC Engineering Services assigned a resident inspector to monitor the manufacturing of the City of Colorado Springs's buses at the Gillig facilities. Prior to production, the TRC Engineering Services inspector became familiar with the technical specifications issued by the City of Colorado Springs. In addition to verifying build quality, the TRC Engineering Services inspector made certain that each bus manufactured by Gillig matched the vehicle specified by the City of Colorado Springs in its bid solicitation.

FMVSS REQUIREMENTS

Gillig falls under the requirements of 49 CFR, Part 661, which mandates compliance by the manufacturer with Federal Motor Vehicle Safety Standards (FMVSS) Certification. This is essentially a self-certification process. TRC Engineering Services examined first hand a copy of Gillig's certification of compliance with Federal Motor Vehicle Safety Standards. Accordingly, TRC Engineering Services finds that Gillig is in compliance with this FTA requirement.

SUMMARY FINDING

Based upon a review of Gillig's production capability, production methods, location of final assembly, domestic contents, compliance with specifications and compliance with FMVSS requirements, TRC Engineering Services finds that Gillig has met FTA Post-Delivery Buy America Audit requirements for the production of this bus order.

Certified this 19th day of April, 2016.

TRC ENGINEERING SERVICES



Edward W. Pigman
President

SAMPLE

Appendix

POST-DELIVERY FMVSS COMPLIANCE CERTIFICATION

As required by Title 49 of the CFR, Part 663 – Subpart D, **the City of Colorado Springs** certifies that it received, at the post-delivery stage, a copy of **Gillig’s** self-certification information stating that the buses, five (5) 35' low floor transit buses, comply with the relevant Federal Motor Vehicle Safety Standards issued by the National Highway Traffic Safety Administration in Title 49 Code of Federal Regulation, Part 571.

Date: _____

Signature: _____ Title: _____

SAMPLE

POST-DELIVERY PURCHASER’S REQUIREMENTS CERTIFICATION

As required by Title 49 of the CFR, Part 663 – Subpart C, **the City of Colorado Springs** certifies that a resident inspector, provided by TRC Engineering Services, was at **Gillig’s** manufacturing site during the period of manufacture of the buses, five (5) 35' low floor transit buses. The inspector monitored the manufacturing and completed a report on the manufacture of the buses providing accurate records of all bus construction activities. The report addresses how the construction and operation of the buses fulfill the contract specifications. After reviewing the report, visually inspecting the buses, and road testing the buses, the recipient certifies that the buses meet the contract specifications.

Date: _____

Signature: _____ Title: _____

SAMPLE

POST-DELIVERY BUY AMERICA COMPLIANCE CERTIFICATION

As required by Title 49 of the CFR, Part 663 – Subpart C, **the City of Colorado Springs** certifies that it is satisfied that the buses received, five (5) 35' low floor transit buses from **Gillig**, meet the requirements of Section 165(b)(3) of the Surface Transportation Assistance Act of 1982, as amended. The recipient , or its appointed analyst **TRC Engineering Services**, has reviewed documentation provided by the manufacturer, which lists (1) the actual component and subcomponent parts of the buses identified by the manufacturer, country of origin, and cost; and (2) the actual location of the final assembly point for the buses, including a description of the activities that took place at the final assembly point and the cost of the final assembly.

Date: _____

Signature: _____ Title: _____

SAMPLE

Exhibit A
REQUEST FOR QUOTATION
Production Line Vehicle Inspections
Includes on-site factory quality assurance
and production monitoring.

| CLASS | ITEM DESCRIPTION | UNIT OF MEASURE | UNIT PRICE PER VEHICLE | ESTIMATED QUANTITY |
|-------|--|------------------------------------|------------------------|--------------------|
| A | Inspection of Low Floor Minivan with Ramp | EACH | \$935.00 | 10 |
| B | Inspection of Converted Van with/without Rear Lift - 138" wheelbase various seating configurations | EACH | \$935.00 | 10 |
| C | Inspection of Narrow Body Cutaway Van with/without Lift 138" wheelbase, various seating configurations | EACH | \$935.00 | 10 |
| D | Inspection of Cutaway Van with/without Lift - 158" wheelbase 12 + 2 seating | EACH | \$935.00 | 10 |
| E | Inspection of Cutaway Van with/without Lift - 178" wheelbase 16 + 2 seating | EACH | \$935.00 | 10 |
| F | Inspection of Mid-Sized Medium Light Duty Transit Vehicles 190" wheelbase, 24 + 2 seating | EACH | \$935.00 | 10 |
| | | UNIT PRICE PER MEETING/SPEC | | |
| G | Attend Pre-Bid Meeting in Charleston, WV | EACH | \$3,100.00 | 5 |
| H | Attend Pre-Production Meeting at Factory | EACH | \$3,100.00 | 6 |
| I | Specification Assistance/Review/Update/Recommend Changes | EACH | \$2,970.00 | 6 |
| | TOTAL BID FOR EVALUATION | *** | *** | **** |
| | | | | |
| | <i>*Complete form provided.</i> | | | |
| | <i>*Please note these are only estimated quantities and do not reflect any guarantee of purchase.</i> | | | |
| | <i>*The DPT may purchase more or less as needed.</i> | | | |
| | <i>*Please do not alter pricing page.</i> | | | |

NOTE: Possible manufacturers (subject to change) are:

- Braun Corporation, Winamac, IN;
- Champion Bus, Inc., Imlay City, MI,
- EIDorado Bus, Salina, KS;
- Elkhart Coach, Elkhart, IN;
- Mobility Transportation Services, Canton, MI;
- Prime Time Specialty Vehicles, Elkhart, IN

| EXTENDED PRICE |
|-----------------------|
| \$9,350.00 |
| \$9,350.00 |
| \$9,350.00 |
| \$9,350.00 |
| \$9,350.00 |
| \$9,350.00 |
| \$0.00 |
| \$15,500.00 |
| \$18,600.00 |
| \$17,820.00 |
| \$108,020.00 |
| |
| |
| |
| |
| |