

# Application for the FY 2016 TIGER Program

## GREEN Fleet Procurement



Submitted by the Regional Transportation Commission of Southern Nevada





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Attached: Benefit-Cost Analysis and Excel Spreadsheet used for Benefit-Cost Analysis



## 1. Project Information

FY 2016 TIGER - RTC Transit Green Fleet Procurement Project Website

Available at: <http://www.rtcnv.com/planning-engineering/rtc-projects/green-fleet-procurement/>

### 1.1 Project Information

<b>Project Name</b>		<b>RTC Transit Green Fleet Procurement</b>
Project Type		Transit
Project Location	State	Nevada
	County	Clark
	Jurisdictions	All of Clark County, Nevada
	Congressional Districts	NV – 1st, Dina Titus; NV 4th, Cresent Hardy; NV – 3rd, Joseph Heck
		Urban
FY 2016 TIGER Grant Funds Requested		\$13,234,000
Sponsoring Organization		Regional Transportation Commission of Southern Nevada
Organization Type (see Note)		Transit Agency
DUNS Number		83-023-3818
Central Contractor Registration		RTC is registered

**Note:** The Regional Transportation Commission of Southern Nevada (RTC) is submitting this application in its capacity as the Transit Agency and designated recipient of Federal Transit Administration funds for the Las Vegas Urbanized Area in Nevada. The RTC is also the designated Metropolitan Planning Organization for the Las Vegas Metropolitan Area, known locally as "Southern Nevada". An explanation of the various functions of the RTC and its geographic area of responsibility is set out on page 35 of the Regional Transportation Plan available at

[http://www.rtcnv.com/wp-content/uploads/2012/10/2013-2035\\_RTP\\_FINAL\\_122712.pdf](http://www.rtcnv.com/wp-content/uploads/2012/10/2013-2035_RTP_FINAL_122712.pdf)

### 1.2 Contact Information

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## 2. Project Description

### 2.1 Current Baseline

The RTC plays an important role in ensuring the mobility and economic health of Southern Nevada. The dominant sector of the regional economy is the gaming-based tourism industry concentrated within the 30-square mile Resort Corridor centered on the Strip (Las Vegas Boulevard) and extending north into Downtown Las Vegas. The tourism industry supports approximately 382,800 jobs in Southern Nevada, which represents 48 percent of the total regional workforce. The ability to reliably and efficiently move the region's over 2 million residents and nearly 42 million annual visitors is critical to the economic health of the region and the State of Nevada.

In its role as the primary provider of public transportation, RTC Transit carried approximately 62 million riders in 2015 – making the RTC the 17th busiest transit system in the nation.

The State of Nevada currently has one of the highest unemployment rates in the United States, at 6.2 percent in February 2016 (<http://www.bls.gov/web/laus/laumstrk.htm>). With record high foreclosure rates and low property values, the critical role of government infrastructure investment to create immediate jobs and ensure long-term economic competitiveness cannot be understated.

Unfortunately, Nevada has historically not received sufficient federal investment to facilitate a sustainable economic recovery. The US Census Bureau annually documents federal expenditures by state in the Consolidated Federal Funds Report (see Figure 2) (<http://www.census.gov/prod/2011pubs/cffr-10.pdf>). The most recent reports available document that Nevada ranked last in per capita federal spending in 3 of the last 4 years. Only in 2008 did Nevada not rank last, when it was 49th and second to last in federal spending.

Targeted federal investment in the RTC Transit Green Fleet Procurement project has the ability to positively impact the economic health of the entire State of Nevada. The project will dramatically improve regional economic competitiveness by replacing 28 old diesel transit buses that have reached the end of their designed service life and purchasing 28 new clean-running compressed natural gas (CNG) transit vehicles.

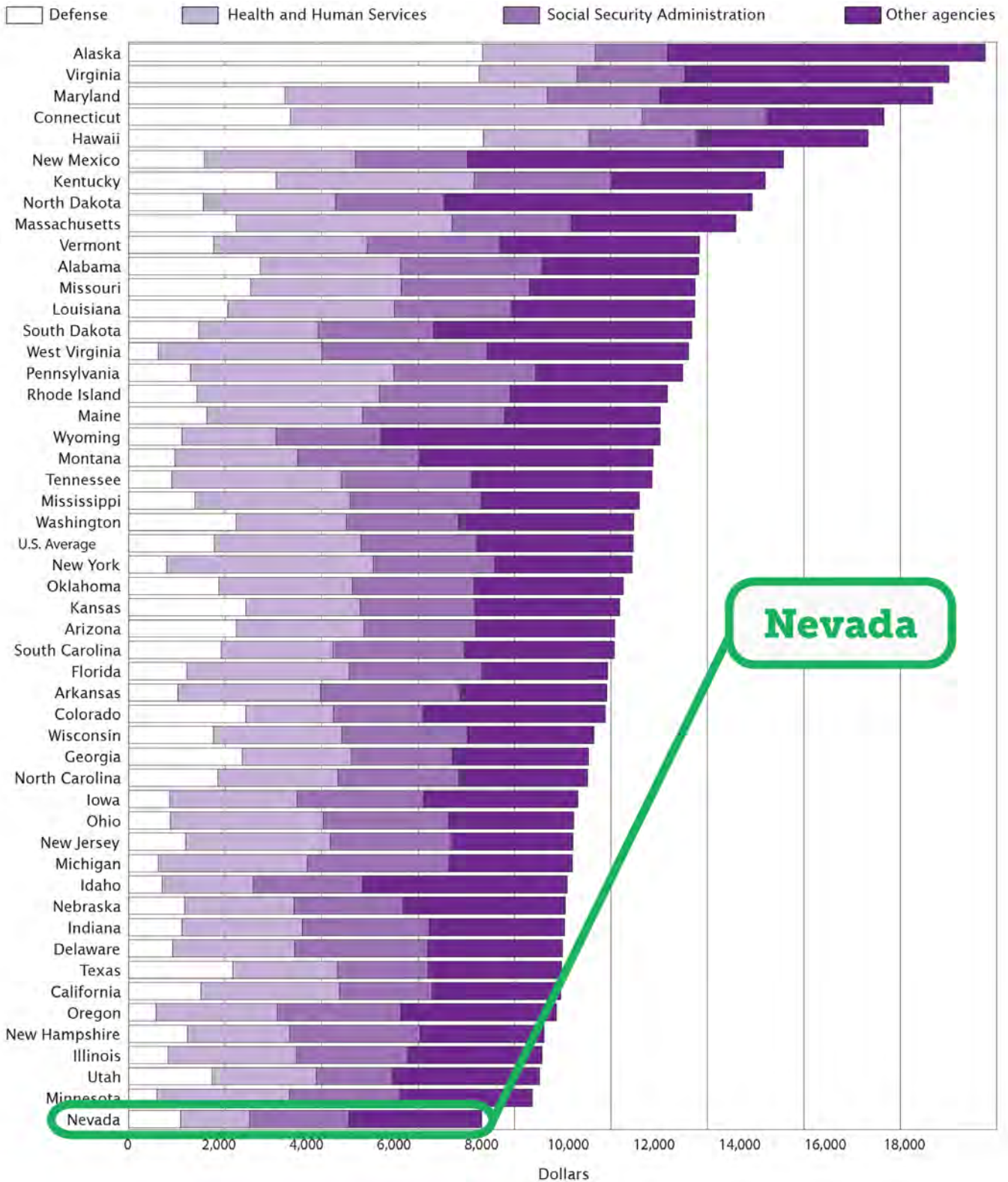
Figure 1: Resort Corridor looking north to Downtown Las Vegas



Increasing economic competitiveness is a primary rationale for this TIGER project. Economic competitiveness will be increased by decreasing transit travel times throughout the system and reducing transit operating costs. Travel times will be reduced by increasing transit service reliability with the replacement of older vehicles prone to in-service break-downs. Operational costs will be reduced by continuing RTC's fleet-wide conversion of rolling stock from diesel fuel to CNG. CNG is currently \$1.20/gge (gasoline gallon equivalent) in Las Vegas compared to \$1.79/gallon for diesel. These operational cost savings can then be directly passed on to residents of, and visitors to Southern Nevada with potential future increases in transit service.



Figure 2: Federal Expenditures Per-Capita by State, 2010 (Most Recent Report Available)



Source: US Census Bureau, 2011 (<http://www.census.gov/prod/2011pubs/cffr-10.pdf>)



## 2.2 Transportation Challenges

### *Poor State of Good Repair:*

The buses to be retired currently have extremely high maintenance costs, while the new CNG vehicles to be procured have proven highly reliable to the RTC with low maintenance costs.

Typically, engine replacement costs are identical for both diesel and CNG transit vehicles, at an approximate fixed cost of \$12,856 annually. However, RTC's diesel vehicles to be replaced require two engine replacements annually, as each replacement only lasts 6 months – twice the national average for the frequency of diesel engine replacement.



### *High and Volatile Diesel Prices:*

Fuel costs are by far one of RTC's largest expenses to operating transit services, and reducing them even slightly can have a profound impact on reducing costs. The RTC is projected to spend almost \$18 million this year on transit fuel alone.

If TIGER funds are awarded for this project, in the first full year of implementation the RTC will save approximately \$292,857 from having the 28 new buses powered by CNG as compared to continuing to operate the existing 28 old diesel fueled buses.

### *Degraded Air Quality:*

Southern Nevada has a long history on not meeting federal air quality standards, and is currently operating under a Maintenance Plan for three pollutants – Ozone, PM10, and Carbon Monoxide. A new Ozone rule issued by the EPA in October 2015 will find that Southern Nevada does not meet stricter standards; and will likely be placed back into Non-attainment status.

In 2014, the American Lung Association found Southern Nevada to be among the top 10 of regions nationwide to be most affected by Ozone pollution (<http://www.stateoftheair.org/2014/city-rankings/most-polluted-cities.html>).





**Low Economic Competitiveness:**

Approximately half of the vehicles targeted for replacement by this project are highly unreliable and diminish regional economic competitiveness. The vehicles to be replaced average almost 7 in-service breakdowns per vehicle per year – compared to less than 1 breakdown per vehicle per year for a normally functioning transit vehicle. This increases transit wait times.

A key component of any major infrastructure project is long-term economic competitiveness. Ensuring travel times are minimized, especially for transit modes, can increase regional economic competitiveness.



**Leverage Previous CNG Investments:**

This project continues RTC’s aggressive initiative to transition both the fixed route and paratransit fleet from diesel to CNG propulsion. Because of this transition, sunk costs to retrofit and retool the RTC’s two maintenance bases to support high-capacity CNG refueling and maintenance needs have already occurred; or are scheduled to occur regardless of this project receiving TIGER funds.

This project benefits from having the necessary support infrastructure already in place, and the previous CNG facility investments can continue to be utilized at high levels.



**Aging Transit Rolling Stock:**

All diesel vehicles to be replaced by this project are over the FTA 500,000 mile limit. Additionally, the average age of buses to be replaced date back to 2005, and are in need of updating in order to ensure public transit remains an attractive transportation option.

Increasing the attractiveness of transit can induce more people to try transit and continue utilizing it – therefore contributing to a reduction in household transportation expenditures.





**Support Domestic Production of Transit Rolling Stock:**

According to the FTA, the U.S. bus manufacturing industry faces extreme challenges. In the last decade, no fewer than ten manufacturers have either reorganized or gone out-of-business. Today, the financial condition of most bus manufacturers is tenuous at best.

The 28 buses to be procured by this project will be manufactured in full compliance with Buy America requirements by New Flyer in Minnesota, supporting local jobs and national manufacturing competitiveness.



**2.3 Transportation Solution – Green Fleet Procurement**

The RTC Transit Green Fleet Procurement project will go a long way in helping solve the challenges identified above by replacing 28 old, diesel-powered transit buses that have reached the end of their designed service life and purchasing 28 new clean-running CNG transit vehicles.

Without the awarding of TIGER funds for this

project the existing diesel transit vehicles will continue to operate in revenue service and accumulate approximately 66,000 miles annually. Existing operating characteristics including transit headways, speeds, annual mileage accumulated, and service routes would be maintained to meet the needs of residents and visitors in Southern Nevada.

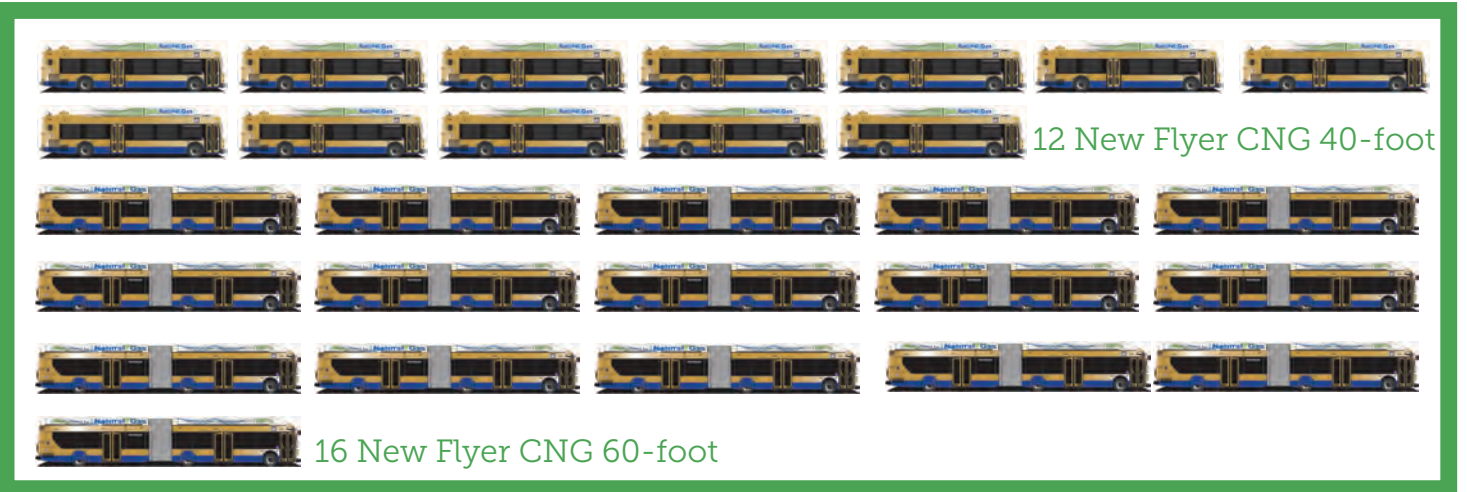
Figure 3: Example of a New Flyer 60-foot CNG Articulated Bus to be Procured





Figure 4: Summary Project Description

## 28 CNG Buses Procured



## 28 Diesel Buses Retired



This project results from a synthesis of both long-term regional goals and short-term RTC Transit operational needs. The RTC has been working for years to convert both its entire fixed-route and paratransit fleet from diesel-powered vehicles to CNG-powered vehicles. Currently, the fixed-route fleet of 404 buses contains 111 CNG-powered transit vehicles. The RTC intends to transition its entire future fixed-route fleet to CNG as existing diesel vehicles reach the end of their useful design life. This project helps the RTC fulfill this overall long-term regional vision.

RTC Transit operational needs are additionally constrained by the useful design life of modern transit vehicles. Buses are limited to 12-years of continuous operation or 500,000 miles. All exist-

ing diesel vehicles to be replaced by this project are over the 500,000 mile FTA limit – not over the 12-year age limit. The average age of buses to be replaced are high-mileage models dating back to 2005.

### 2.4 Anticipated Users of the Project

This project will purchase a combination of both standard 40-foot buses and high-capacity 60-foot articulated vehicles that can seat up to 61 passengers. Therefore, the new CNG vehicles will operate on a wide variety of RTC's routes throughout the entire transit system. The RTC operates 39 transit routes, 3,214 bus stops and in 2014 more than 15 million miles were traveled by transit vehicles.





After a record high of 64.8 million boardings in 2008, the recession and associated service reductions resulted in steep ridership declines between 2009 and 2011, dropping to a low of 55.5 million boardings in 2011. Such a decrease was common amongst many transit systems throughout the United States. However, ridership has been recovering since 2011, reaching 60.3 million boardings in 2013, and it appears increases are now accelerating: ridership is up 8.2% year over year through the first four months of 2015. At this rate, RTC is approaching a return to near record ridership levels, making an already very efficient and well-utilized system even more successful.

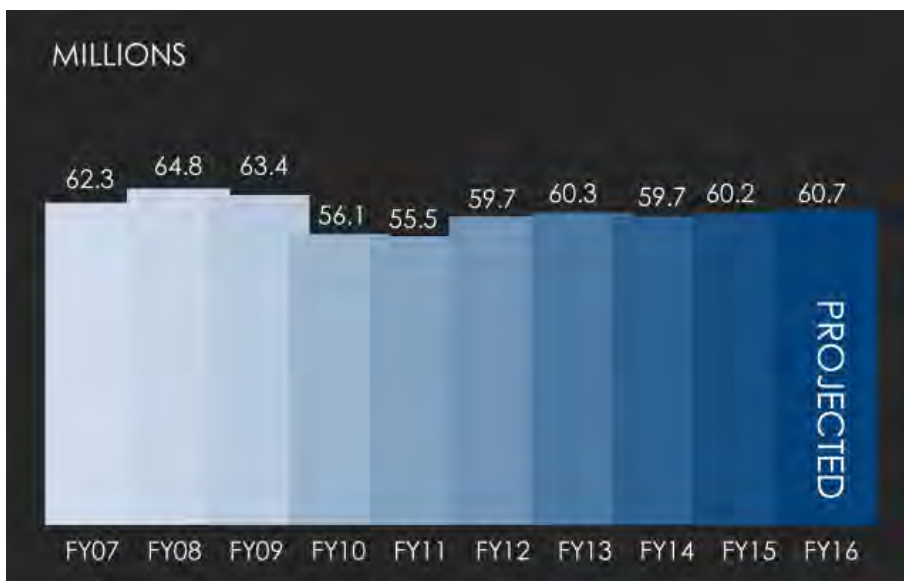
Ridership growth has been aided by targeted service restoration and occasional expansion, as RTC has been increasing service hours by about 3% to 5% annually since 2012. More than a dozen routes are now achieving record high ridership levels. RTC now has eight routes that experience over 10,000 boardings per weekday, and another six routes with over 5,000 boardings per weekday. RTC's uniquely fortunate combination of high ridership and long vehicle blocks results in extremely strong utilization of its fleet: the average fixed-route vehicle experiences nearly 500 boardings per weekday, or about 160,000 boardings annually per bus.

### RTC Transit by the Numbers

- Ridership has increased from 22 million in 1994 to 60 million in 2013, making the RTC the 17th busiest transit system in the nation (National Transit Database, Fiscal Year 2013)
- In 2013, RTC carried 50,000 bicycles (greater than TriMet in Portland, Oregon)
- In 2013, more than 15 million miles were traveled with 89.1% on-time
- On a typical weekday, RTC has more than 186,000 boardings
- According to the National Transit Data bases Top 50 Transit Agencies, in 2013 the RTC ranked No. 1 in the nation when compared to other transit agencies under Bus Mode in the following categories:

*-Operating costs recouped through fare revenues (fare recovery ratio)*

Figure 6: RTC Transit Ridership Trends





## 2.5 Ladders of Opportunity

This project's dedicated investment into the public transit system will overwhelmingly benefit lower income persons. In 2015 the RTC completed a comprehensive onboard transit survey to better understand various characteristics of transit users. The survey gathered data from a statistically significant number of transit riders, and will help improve ridership forecasts produced by RTC's travel demand model. The project gathered data from 41,772 transit trip origins and destinations, and completed 14,125 full in-depth survey interviews.

The results of the transit user survey found:

- 68% of all transit riders do not own any private automobile(s)
- 77% of all transit riders had no access to a vehicle for their trip
- 65.0% of all transit riders reported household Incomes BELOW \$40,000
- 4.0% of all transit riders reported household Incomes ABOVE \$60,000
- 73.5% of all transit riders are employed on a full/part-time basis

**This project will provide much needed ladders of opportunity for thousands of Southern Nevada residents who are dependent on a clean, comfortable, efficient, and reliable public transportation system to get them to and from work on time.**

## 3. Project Parties

Because the 28 buses to be procured by this project will operate throughout the RTC's transit system, it will benefit all jurisdictions in Southern Nevada. The RTC is the project lead and fiscal agent for FY 2016 TIGER funding and is experienced in managing large federally funded

transit projects; including two previous TIGER awards. The 35% local match for this project will be provided by the RTC in the form of local sales tax revenues.

Letters of support from the Nevada Department of Transportation and other project supporters have been provided and can be accessed on the project website at: <http://www.rtcnv.com/planning-engineering/rtc-projects/green-fleet-procurement/>

The level of coordination typically required for large federal projects is not compulsory for this project simply because it is a streamlined replacement of existing capital rolling stock. The project is not associated with an expansion of transit service that would typically require extensive coordination with local agencies. The project is a true 1-to-1 transit vehicle replacement, so it does not even add to the overall transit fleet size. This type of procurement project does not lend itself to a comprehensive, interdisciplinary approach that involves numerous other project parties to leverage potential positive impacts on land-use planning, economic development, and cultural initiatives. Thus, the RTC has complete control of all project phases.

The primary project partner is the manufacturer of the transit vehicles to be procured; New Flyer of America, Inc. They were selected by the RTC through a competitive bidding process to provide the 28 transit vehicles for this project.

The RTC first selected New Flyer through a competitive Request for Proposals (RFP) process that began in 2014. In 2015, the RTC Board of Commissioners selected New Flyer for an initial contract worth \$39,516,420 to deliver 35 40-foot CNG buses and 20 60-foot CNG buses. The initial contract also contained options for the RTC to procure an additional 150 40-foot CNG buses and 100 60-foot CNG buses within the next 5 years.

The 28 buses proposed to be procured with TIGER funds will be purchased from New Flyer as an option to the existing contract approved by the RTC in 2016. This ensures both project price certainty, and schedule expediency as the RFP



<b>Project Sponsor and Grant Recipient</b>	
Name	Regional Transportation Commission of Southern Nevada (RTC)
Organization Type	Transit Agency / Designated Recipient of FTA funds
Address	600 South Grand Central Parkway, Suite 350, Las Vegas, Nevada 89106-4512
General Manager	Tina Quigley
Contact person	Lisa Bean, Senior Accountant
<b>RTC Departments</b>	
RTC Transit	M.J. Maynard, Deputy General Manager
Metropolitan Planning Organization and Freeway and Arterial System of Transportation	Fred Ohene, Deputy General Manager
<b>Project Partners</b>	
New Flyer of America, Inc.	Paul Smith, Executive Vice President

process for a vehicle manufacturer has already been completed.

New Flyer is the leading manufacturer of heavy-duty buses in the U.S. and Canada. They offer one of the broadest lines of transit vehicles available, and have secured their strong market position by providing reliable transportation solutions that meet the needs of Southern Nevada today - while also anticipating the needs of our region tomorrow. The RTC's current fleet of New Flyer CNG vehicles has proven extremely reliable and resulted in dramatic maintenance cost savings. The lifetime CNG fuel cost savings provided by New Flyer vehicles only adds additional benefits to this project.

Figure 7: New Flyer Production Facility in St. Cloud, Minnesota





## 4. Grant Funds and Sources of Project Funds

RTC Local Funds (Local Sales Tax)	\$7,126,000	35%
FY 16 TIGER Grant Funds Requested	\$13,234,000	65%
Total Project Cost	\$20,360,000	100%

In addition to the requested TIGER funds, the RTC proposes a 35% project match utilizing local sales tax revenues. The \$7,126,000 in local sales tax revenues are currently secured by the RTC for use on this project. The revenues are authorized to be collected by the RTC for transit purposes under two separate local tax measures:

- 1991 Question 10 funds – 1/4 of a per cent sales tax
- 2003 Question 10 funds – 1/8 of a per cent sales tax

The 35% match for this project represents a higher local share than is typically required for federal reimbursement of transit capital rolling stock. The primary federal funding source utilized by the RTC for rolling stock is the Urbanized Area Formula Program (5307) and the Bus and Bus Facilities Program (5339). The federal share for both 5307 and 5339 funds typically cannot exceed 80% of the net project cost – thus requiring only a 20% local match.

## 5. Selection Criteria

### 5.1 State of Good Repair

Maintaining a state of good repair for RTC's fixed route transit fleet is a primary consideration of this project. The buses to be retired currently have extremely high maintenance costs, while the new CNG vehicles to be procured have proved highly reliable to the RTC with low maintenance costs.

This project is consistent with federal, state and local RTC goals for maintaining the transit system in a state of good repair by replacing and upgrading transit capital rolling stock. Funding

this project will enable the RTC to continue efforts to use capital program funds in ways that promote operating efficiency – and thereby reduce lifetime operation and maintenance costs. The current diesel fleet is prone to high levels of breakdowns and has disproportionately high maintenance costs. Operational cost savings realized by project implementation could potentially be utilized by the RTC to fund expansions in transit operating service.

### i) System Standards

One of the primary rationales for the project is to conform with FTA guidelines that limit heavy transit vehicles to either 12-years or 500,000 miles of service ([http://www.brookings.edu/~media/research/files/reports/2012/3/0622-metro-monitor/0328\\_metro\\_monitor](http://www.brookings.edu/~media/research/files/reports/2012/3/0622-metro-monitor/0328_metro_monitor)). All diesel vehicles to be replaced by this project are currently over the 500,000 mile FTA limit. This high mileage situation is somewhat unique to Southern Nevada, which is a relatively large metropolitan area with a transit system that covers 39 transit routes, 3,214 bus stops and annually logs more than 15 million transit vehicle miles traveled.

Much of the transit bus fleet is fairly new, and the high mileage operated by the RTC transit fleet means that many buses will need to be replaced by mileage limits sooner than the 12-year time limit. Even the modern double deck buses and bus rapid transit vehicles that tend to operate in a denser urbanized core are anticipated to remain in service for fewer than 12-years before being replaced.

Continuing compliance with applicable federal guidelines for high mileage transit vehicles will be confirmed for buses to be replaced by this



project. The RTC does not anticipate seeking any waivers from generally applicable standards.

### ii) Rehabilitation, Reconstruction, and Upgrading of Facilities

The 28 diesel transit vehicles scheduled to be replaced are beyond their useful design life. If left unimproved, the 28 buses will be beyond their replacement schedule and continue to require disproportionate funds be expended by the RTC to continue their revenue operation. The vehicles cannot be rehabilitated or repaired – they must be replaced in order to be brought to a state of good repair.

All of the vehicles are over the FTA mileage limits, and as displayed in Figure 8 below their design and operational characteristics are func-

tionally obsolete to meet the RTC’s long-term fleet management goals.

RTC’s current diesel engine rebuild or replacement costs are much higher than the national average. Typically, engine replacement costs are identical for both diesel and CNG transit vehicles, at an approximate fixed cost of \$12,856 annually ([http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_132.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_132.pdf)); CPI method to convert to 2015 dollars. However, RTC’s diesel vehicles to be replaced require two engine replacements annually, as each replacement only lasts 6 months. This is twice the national average for the frequency of diesel engine replacement. Additionally, RTC’s Fleet Management Services Department has tracked the cost of these replacements at approximately \$40,000 each; or \$80,000 annually for each transit vehicle.

Figure 8: Interior Pictures of Current Diesel Fleet to be Replaced





The RTC’s diesel fleet to be replaced also have high maintenance costs associated with air conditioning compressors that are prone to failure. The old buses are not well suited to coping with the extremely high temperatures common in Southern Nevada. Replacement costs for each compressor are approximately \$6,000 for each bus, with two replacements per year required.

These specialty repairs demanded by the current diesel fleet not only cost the RTC in additional maintenance expenditures, but also a large portion of the fleet is continually unavailable to operate in productive revenue transit service. Almost half of the 60 foot diesel vehicles to be replaced are perpetually out-of-service due to necessary repairs. For example, diesel engine repair or replacement requires the bus to be taken out of active service for up to 1-month.

The CNG buses to be procured by this project do not have similar problems with engine replacements and air conditioning compressors. If TIGER funds are awarded, the RTC will be able to retire this high cost diesel fleet and realize \$205,070 in savings annually in the first year of implementation just in avoided maintenance costs.

### iii) Capitalization and Asset Management

Since this project is a replacement of transit rolling stock, it does not add vehicles to the overall size of RTC’s fleet. Indeed, because of the high maintenance costs of the outgoing diesel fleet, long-term maintenance costs for the same fleet size should be dramatically reduced.

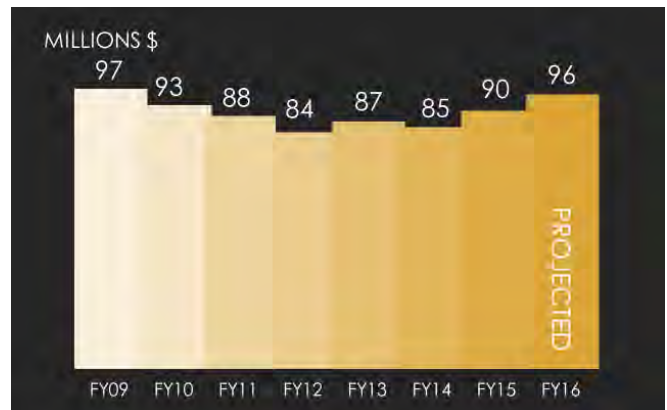
RTC selected New Flyer transit vehicles through a competitive bidding process based in part on their lower life-cycle cost. Specific features designed to reduce long-term maintenance expenditures include:

- Telematics system that provides proactive diagnostic feedback for driver performance and maintenance;
- 12-year LED headlights
- Corrosion-free fiberglass exterior panels

- that provide easy-access Disc Brakes with lower maintenance costs

These technology investments designed to lower lifetime asset management costs are significant. RTC transit services and maintenance costs are covered under a contract based on the cost per service hour of operations. As Figure 9 below identifies, these costs are projected to increase, even without a comparable increase in transit service hour provided.

Figure 9: RTC Fixed Route Operation and Maintenance Costs



Fixed route cost increases are continually a challenge to the RTC as local revenue sources continue to be squeezed by the economic recovery. By bringing key components of transit infrastructure up to standard, the project will minimize maintenance expenses and help stabilize the long-term cost structure of operating the fixed route system.

An additional benefit of this project is deferred transit vehicle replacement costs at a future date. The Benefit Cost Analysis assumes that all 28 vehicles would be replaced by year 2024 – when the buses will have completely exceeded both the 12-year and 500,000 mile replacement thresholds and their replacement would be necessary for safety concerns.

### iv) Sustainable Revenues

This project is financially sustainable and can be



Figure 10: Sales Tax Revenues Available to the RTC

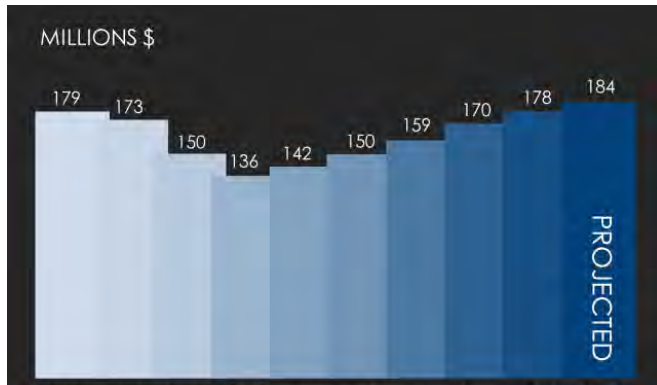
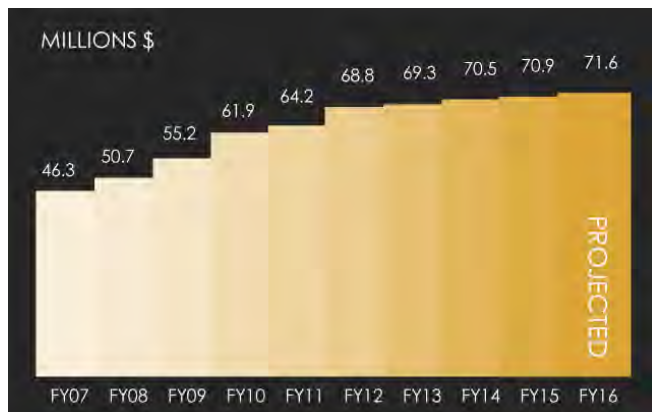


Figure 11: Transit Fare Revenues Available to the RTC



fully implemented and maintained within the resources anticipated to be available to the RTC. Sales taxes are the sole revenue source for this project's initial 35 percent local match. Funding for the long-term transit fleet maintenance and operation costs will come primarily from two revenue sources:

- Sales taxes – approximately 60 percent;
- Transit fares – approximately 40 percent.

As Figure 10 identifies above, sales tax revenues declined sharply during the recession, but have since stabilized, albeit at a lower level than the historic high in 2007. Transit fare revenues displayed in Figure 11 document an incremental sustainable increase – indicative of the continued population and tourism generated visitor growth in Southern Nevada. This projected

increase in ridership and farebox revenue makes a positive contribution to the RTC's long-term cost structure for maintaining the system in a state of good repair.

## 5.2 Economic Competitiveness

### i) Local Economic Conditions

The State of Nevada currently has one of the highest unemployment rate in the United States, at 6.2 percent in January, 2016 (<http://www.bls.gov/web/laus/laumstrk.htm>)

Housing also remains an ongoing economic concern, with Las Vegas ranked 12th nationally in the Serious Delinquency Rate of U.S. Metropolitan Areas and 22nd in the Foreclosure Rate, September 2013. Las Vegas is the only Metropolitan Area west of the Mississippi River to appear in the top 25 of either of these housing measures. Property values have dropped by more than 60% since the start of the recession, and values remain more than 20% below their peak pre-recession value (<http://blogs.marketwatch.com/capitolreport/2014/04/01/four-states-hit-record-highs-for-home-prices/?link=sfmw>).

The Las Vegas metropolitan area is classified as one of the 20 weakest-performing metropolitan areas in the United States, according to a recent report from the Brookings Institution's Metropolitan Policy Program ([http://www.brookings.edu/~media/research/files/reports/2012/3/0622-metro-monitor/0328\\_metro\\_monitor](http://www.brookings.edu/~media/research/files/reports/2012/3/0622-metro-monitor/0328_metro_monitor)). The report cites several factors that reinforce each other as reasons for why Las Vegas has been particularly hit hard during the recession; the economic sensitivity of tourism, severely overpriced housing, and higher employment proportions in real estate and construction. Due to this combination of factors, the real estate market and the unemployment rate in the area remain depressed.

### ii) Southern Nevada Economic Competitiveness

#### Improving Transit Mobility to Employment Centers



The economy of Southern Nevada is dominated by the gaming-based tourism industry, centralized primarily on the Las Vegas Strip. This industry is an important element of the national economy. In 2013, the Las Vegas gaming-based tourism industry and supporting businesses employed over 382,800 people, 47% of the total regional workforce, and contributed \$43 billion in economic output, which is over a third of the Nevada GDP. The ability to move the community's over 2 million residents and nearly 42 million annual visitors is critical to the economic health of the entire State of Nevada.

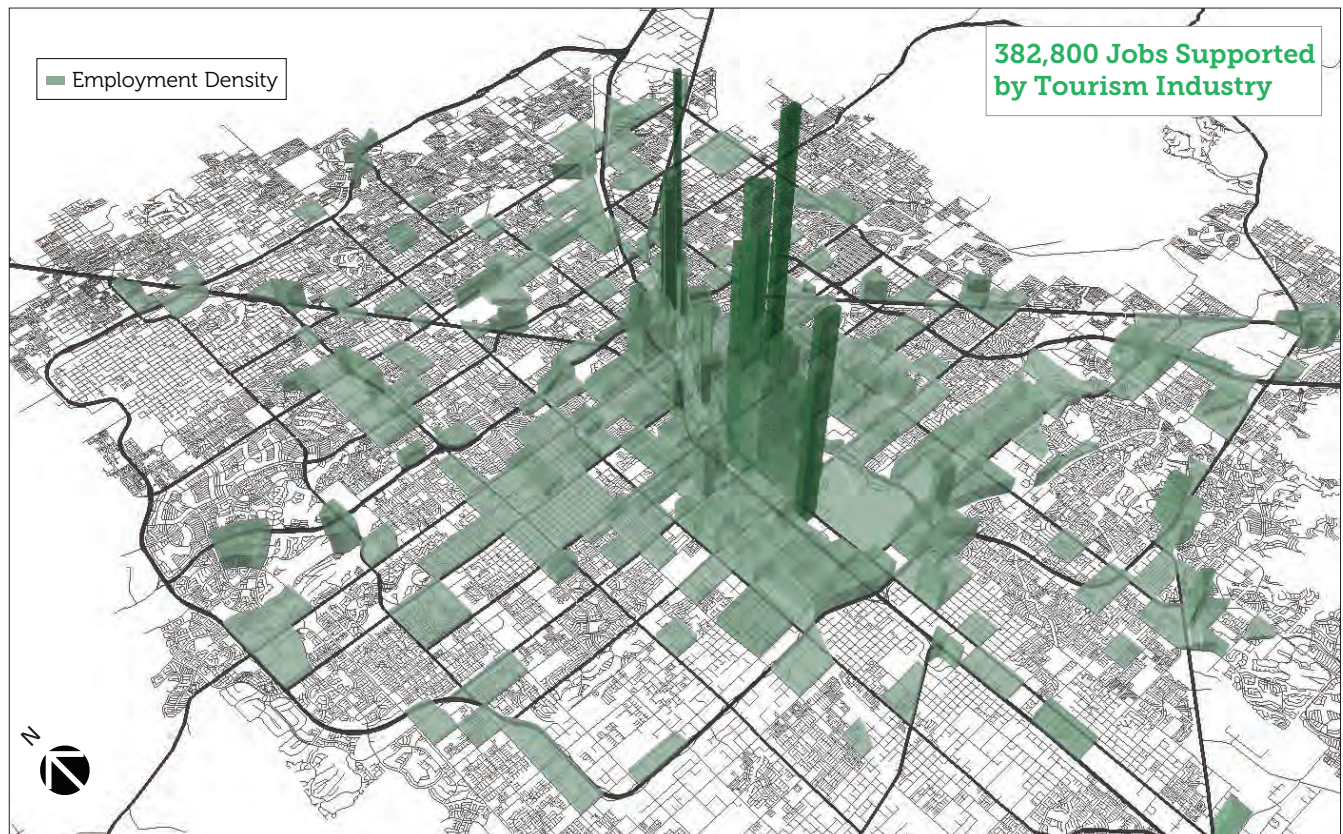
competiveness. Ensuring travel times are minimized, especially for transit modes, can increase regional economic competitiveness. As a world-class service industry, Las Vegas relies heavily on a reliable, productive and contented workforce, which in turn is dependent on an efficient public transportation system to get to and from work. Service workers are the front-line point of contact between the industry and its customers, and if those workers are not at their best, then the customers are the first to notice. The quality and reliability of the work commute are major factors in this equation.

The RTC is focused on improving the performance of the entire transit system because of its central role in the overall economic recovery. RTC transit provides multiple points of direct access to the largest employment center in the State of Nevada – the Las Vegas Strip.

However, approximately half of the vehicles targeted for replacement by this project are highly unreliable and diminish economic competitiveness. Based on field operating characteristics provided by RTC's Fleet Management Services, the current 40-foot diesel vehicles are reliable (0.92 in-service break-downs per vehicle/year), while the 60-foot diesel vehicles are highly unreliable (12.15 in-service break-downs per vehicle/year). Taking the mean average for both

In light of the recent economic downturn in Southern Nevada, a key component of any major infrastructure project is long-term economic

Figure 12: Employment Density in Southern Nevada





vehicle classes equates to 6.5 in-service breakdowns per vehicle/year.

These non-recurring delays slow discretionary travel by visitors, and add to the monetary cost of commuting and diminish productivity of the workforce. Using the values contained in the TIGER Benefit-Cost Analysis Resource Guide, in the first year of project implementation over \$400,000 will accrue to transit riders in travel time savings from increased reliability. Part of the reason for such high levels of savings is because research has shown that transit waiting time unit costs are two to five times higher than in-vehicle transit travel times.

The CNG vehicles to be procured by this project have proven highly reliable and capable of ensuring reliable and efficient regional mobility.

### Reducing Transit Diesel Fuel Expenditures

A primary economic consideration of this project is the fuel cost savings that will be realized by the RTC. Fuel costs are by far one of the largest transit operating expenses, and reducing them even slightly can have a profound impact on reducing overall expenditures.

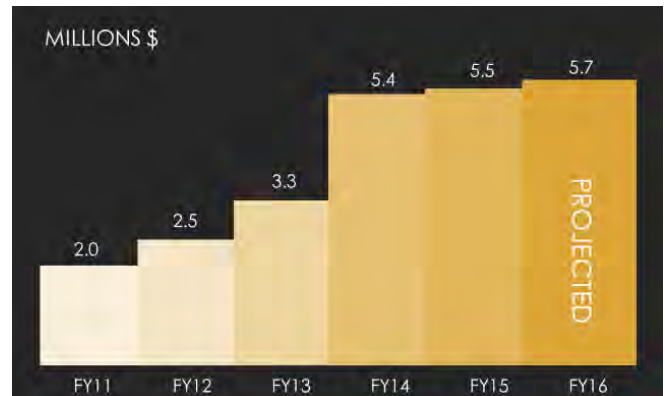
**The RTC spent almost \$18 million on transit fuel in 2015 – even when including the already completed conversion of over 25% of the fleet to cheaper CNG.**

CNG is currently available to the RTC for \$1.20 gasoline gallon equivalent (3/18/15), while diesel is available for \$1.79. This project's retirement of 28 diesel vehicles and procurement of 28 CNG buses will save the RTC approximately \$292,857 in the first full year of implementation alone. When combined with the RTC's overall fleet-wide objective to increase CNG use, the annual savings from foregone diesel fuel expenditures grows to approximately \$5.5 million in 2016.

While not considered in a description of this project, it should be noted that the RTC utilizes scarce local transit revenues to purchase fuel and provide transit service hours. Any reduction

in RTC operational costs can be directly transferred to the public through increased transit service (i.e. new routes or reduced transit headways)

Figure 13: RTC Estimated Savings from CNG Conversion of Transit Vehicles



### iii) National Economic Competitiveness

According to the FTA, the U.S. bus manufacturing industry faces extreme challenges. In the last decade, no fewer than ten manufacturers have either reorganized or gone out-of-business. Today, the financial condition of most bus manufacturers is tenuous at best.

This project invests \$20,360,000 to procure 28 new buses from New Flyer of America, Inc. at their production facility located in St. Cloud, Minnesota. This project alone will create or support approximately 279 job-years. This figure is based on updated Council of Economic Advisers figures of 1 job-year created for every \$76,923 invested in transportation infrastructure; including capital rolling stock. A further benefit of this project is that because it is a purchase of equipment, the economic opportunities will be created relatively quickly compared to other infrastructure projects. That will translate into immediate opportunities for small, veteran, disabled, and disadvantaged business enterprises to gain traction.

### iv) International Energy Security



Diesel fuel consumption has costs beyond the actual operating and environmental costs of consumption. This additional cost is expressed as the economic cost of foreign oil imports. Because the U.S. is such a large consumer of oil, an increase in domestic demand would lead to higher fuel prices, based on supply and demand relationships. Another factor is that when there is a reduction in worldwide oil supply, it leads to higher oil prices, which in turn reduces U.S. economic output. As a consequence, reducing oil imports by consuming less fuel reduces the impact of these costs on the U.S. economy.

The National Highway Traffic and Safety Administration has explored this concept, and estimates that each gallon of diesel fuel saved reduces total U.S. imports of refined fuel or crude oil by 0.95 gallons ([http://www.nhtsa.gov/DOT/NHTSA/Rulemaking/Rules/Associated%20Files/CAFE\\_Final\\_Rule\\_MY2011\\_FRIA.pdf](http://www.nhtsa.gov/DOT/NHTSA/Rulemaking/Rules/Associated%20Files/CAFE_Final_Rule_MY2011_FRIA.pdf)).

Increased use of natural gas is an effective method to reduce foreign oil imports. Natural gas has consistently been by far the largest domestically produced energy resource (<http://www.eia.gov/todayinenergy/detail.cfm?id=16511>). Further, in the American South, the U.S. Energy Information Administration's region most closely associated with Southern Nevada, the region is a net exporter of natural gas – no net foreign imports of natural gas. (<http://www.eia.gov/naturalgas/importsexports/annual/#tabs-prices-4>).

Figure 14: Domestic Natural Gas Production Reduces Foreign Oil Imports



This projected contribution toward increasing domestic energy security and reducing foreign oil imports is valued at \$196,933 in the first year of implementation.

### 5.3 Quality of Life

This project is fully supported by the 2011 Regional Planning grantee under HUD's Sustainable Communities Initiative; Southern Nevada Strong (see attached Letter of Support). Southern Nevada Strong anticipates the project providing improved and enhanced transit links connecting residential communities and key employment areas near and within the Strip. The RTC has prioritized this project to specifically address the first of six identified livability principles: create affordable and convenient transportation choices, especially for economically disadvantaged populations, non-drivers, seniors and persons with disabilities.

#### i) Enhanced Transit Aesthetics

The RTC strives to continually increase the attractiveness and design aesthetic of its fixed route transit fleet. In basic terms, this project will enhance transit simply by replacing older buses at the end of their service life with clean new buses. But, the project will also benefit from the vehicle manufacture, New Flyer, incorporating a more updated exterior design and a more ergonomically friendly interior with enhanced seating positions, better storage, better HVAC systems, and better lighting.

Increasing the attractiveness of transit can induce more people to try transit and continue utilizing it – therefore increasing ridership and contributing to a reduction in household transportation expenditures. This project's utilization of New Flyer's updated Xcelsior® transit vehicle design will increase region wide livability.



Figure 15: Updated Design Aesthetic for Transit Vehicles

The vehicles to be procured continue RTC’s long-standing commitment to promote bicycling. All 28 new buses will be installed with front-loading racks that accommodate placement for 3 bicycles. The RTC has long recognized the complimentary relationship between bicycling and transit. For a 1-year period between April 2014 and April 2015, the RTC carried 699,654 bikes on buses. This is more than any other comparable bus transit system in the United States. The Las Vegas Valley has nearly 395 miles of bike lanes and 80 miles of bike routes.

### ii) Ladders of Opportunity

As detailed in Section 2.5, this project’s investment in new transit vehicles disproportionately benefits Southern Nevada’s lower-income work-

ing population. 65 percent of RTC’s almost 61 million transit riders are composed of persons with total household incomes below \$40,000 – and 74 percent of transit users have jobs. Southern Nevada’s transit rider demographic urgently needs investments in the transit system that increase reliability and facilitate advancements in the workplace.

### iii) Southern Nevada Strong

In early 2015, the Southern Nevada region completed a comprehensive, in-depth analysis of the livability challenges and needs facing the community. As a 2011 Regional Planning grantee under HUD’s Sustainable Communities Initiative, Southern Nevada Strong’s all-inclusive findings prioritized the region’s top 7 action items (<http://www.southernnevadastrong.org/>). Included



among these was a need to improve transit options in low and moderate income areas. This action item falls under the purview and responsibility of the RTC. This project seeks to further help implement this identified need.

Please see Southern Nevada Strong’s letter of support for this project attached.

### 5.4 Environmental Sustainability

This project’s principal sustainability benefit is improved air quality derived from replacing old, diesel transit vehicles with new clean-running CNG models.

The Southern Nevada region has a history of reduced air quality, primarily for three criteria pollutants: Particulate Matter up to 10 micrometers in size (PM10), ozone, and Carbon Monoxide. Despite previous findings of non-attainment for all three pollutants, the region has just recently been re-designated to attainment with the approval of Maintenance Plans for all three pollutants. However, new National Ambient Air Quality Standards proposed by the EPA for ozone could again likely find Southern Nevada over allowed threshold levels.

Ensuring this project is funded will help implement strategies contained within the respective air quality Maintenance Plans to sustain good levels of regional air quality. Funding will help ensure transit remains a reliable and attractive transportation option, while continuing the RTC’s long-term program to transition the transit fleet from diesel to CNG fuel.

#### i) Air Quality Emission Reductions

A project-level emissions analysis was conducted to quantify this project’s air quality benefit. Emission reduction estimates for this project were conducted using the Diesel Emissions Quantifier (DEQ) tool developed and maintained by the EPA. More information about the tool and the National Clean Diesel Campaign can be found at: <https://www.epa.gov/cleandiesel/diesel-emissions-quantifier-deq>

Both the baseline and build assumptions analyzed included equivalent transit operating characteristics and ridership. Therefore, all emissions benefits are the result of more modern, technologically advanced engines running on a cleaner CNG fuel source.

The analysis shows predicted emissions for the project are lower than the base no-build scenario. Ozone emissions are not calculated directly. Instead, the calculations are performed for the chemicals that contribute to ozone formation in the lower atmosphere: volatile organic compounds (VOC) and the oxides of nitrogen (NOx).

Monetizing these emission reductions according to the recommended values in the TIGER Benefit-Cost Analysis Resource Guide results in \$243,767 annual savings in the first year of project implementation alone.

Additionally, it should be noted that these benefits are the singular result of the 28 buses being operated by a different fuel source. There are no air quality benefits included that may be realized as the result of newer, better aesthetically designed buses increasing transit ridership and lowering automobile vehicle miles traveled. Since many of the new buses will operate on RTC’s existing Bus Rapid Transit routes, increasing

Annual Estimates	NOx	PM2.5	VOC	CO2
	(short tons/year)	(short tons/year)	(short tons/year)	(metric tons/year)
Baseline of 28 Vehicles Retrofitted	20	1.3	1.86	1,771
Percent Reduced (%)	76%	21%	80%	25%



the attractiveness of transit can potentially induce many new riders to consider utilizing it.

### ii) Noise Reductions

On average, natural gas engines run 10 decibels quieter than a comparable diesel engine (<http://www.freightlinergreen.com/why>). Reductions in noise emissions are the result of this project's use of quieter CNG engines, and general technology improvements that make new CNG buses quieter than the older diesel models they replace.

Noise reductions benefit both transit passengers inside the vehicle, especially driver comfort over prolonged operation periods, and the general public during transit movements in local neighborhoods.

## 5.5 Safety

While improving user safety of the transportation system remains the RTC's top priority, it is not a primary consideration for implementing this project. The safety benefits are minor and difficult to quantify. As this project replaces old buses with new, reductions in the severity of crashes that result in property damage, injuries, or fatalities will be the result of improved crash worthiness of the buses themselves. Additionally, transit crash rates are extremely low when compared to automobile rates, and continuing to invest in transit makes it an appealing transportation mode.

Quantifying and monetizing these small safety benefits would be both difficult and provide only minor benefits. This application simply notes that a measurable safety benefit is present for this project, even though it is not quantified or monetized.

### i) Improved Bus Vehicle Safety

The Federal Motor Vehicle Safety Standards (FMVSS) are U.S. federal regulations specifying design, construction, performance, and durability requirements for motor vehicles. FMVSS are cur-

rently codified at 49 C.F.R. 571 and are developed and enforced by the National Highway Traffic Safety Administration (NHTSA).

FMVSS are divided into three categories: crash avoidance (100-series), crashworthiness (200-series), and post-crash survivability (300-series). The first regulation, FMVSS No. 209, was adopted on 1 March 1967 and remains in force to date, though its requirements have been periodically updated and made much more stringent.

This periodic updating of the FMVSS provides the rationale for why the buses to be procured by this project are safer than the buses to be replaced. The average age of buses to be replaced are high mileage models dating back to 2005. Many of the FMVSS applicable to transit buses have been updated since 2005, with many of them pertaining to safety standards for CNG fueled vehicles.

### ii) Reduced Volume-Related Accidents

The bus transit mode is one of the safest modes of travel throughout the world. The table below illustrates the safety benefits of bus travel when compared to other modes:

Travel Mode Deaths Per Billion Passenger-Miles	Travel Mode Deaths Per Billion Passenger-Miles
Car or Light Truck	7.28
Commuter Rail	0.43
Subway or Light Rail	0.24
Transit Bus	0.11
Commercial Aviation	0.07

Source: <http://www.vtpi.org/safer.pdf>

Investing in this project has the potential to leverage the inherent safety benefits of transit. By increasing the attractiveness of transit, more people may potentially be induced to utilize it. The more people who switch from travel by automobile, the least safe mode, to transit, the safer the entire transportation system will become.



## Secondary Selection Criteria

### 5.7 Innovation

This project offers an innovative approach to improved transit mobility in a large metropolitan area with the use of cutting-edge transit technology, as well as the implementation of coordinated long-term fleet planning.

#### i) Innovative Transit Vehicles

As highlighted in the Livability section, this project will purchase both 40-foot and 60-foot articulated New Flyer XcelSior® transit vehicles. These vehicles represent the current highest standard of fixed route transit vehicles, with New Flyer being one of the leading manufacturers of heavy-duty buses in the U.S. and Canada. The CNG propulsion option being exercised by the RTC will reduce both emissions and fuel expenditures – enabling scarce local revenues to be used to fund increases in transit operational service.



**XCELSIOR**  
BETTER BY DESIGN.

#### ii) Fleet-wide Reduction in Diesel Fuel Expenditures

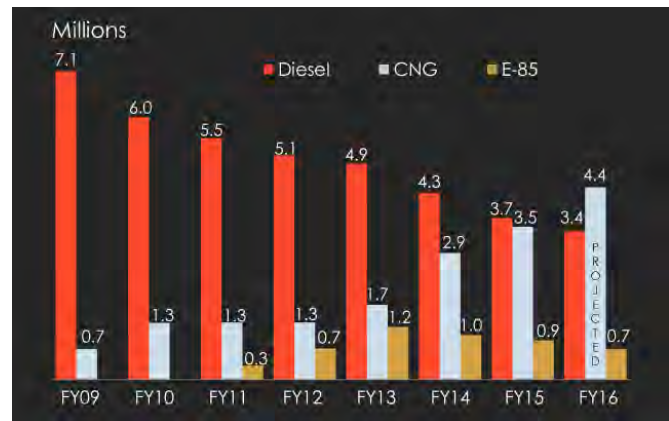
This project represents a significant piece of a larger RTC initiative to convert both the fixed route and paratransit fleet from diesel fuel to CNG fuel.

Currently, the fixed-route fleet of 404 buses contains 166 CNG-powered transit vehicles. The RTC intends to complete this transition as the existing diesel fleet reaches the end of its useful design

life. This project helps the RTC fulfill this overall long-term regional vision.

As Figure 16 displays below, consistently implementing a coordinated vision has produced a dramatic reduction in diesel fuel expenditures – from \$7.1 million in 2009 to just \$3.4 million projected in 2016. The overall increase in total fuel expenditures during this time period reflects an increase in transit services provided. Without the transition to CNG already having an impact on diesel expenditures, the RTC’s total agency fuel cost during this period would have been much greater; with service expansions much less likely.

Figure 16: Reduced Diesel Fuel Expenses



### 5.8 Partnerships

#### i) Jurisdictional and Stakeholder Collaboration

This project is primarily a collaborative effort between the Regional Transportation Commission of Southern Nevada and New Flyer of America, Inc. The RTC first selected New Flyer to supply the proposed CNG transit vehicles through a competitive RFP process that began in 2014. The primary goal of the project is to increase the reliability, attractiveness, efficiency and sustainability of the fixed route transit system that annually logs more than 15 million VMT by transit.

The RTC and New Flyer have a long history of working together to procure new transit vehicles. In 2013, the RTC conducted a site visit of New



Flyer's main assembly plant in both Minnesota and Winnipeg, Canada to better understand the complexity of manufacturing transit vehicles, and to determine the optimal specifications for the fixed route fleet in Southern Nevada.

There has been extensive coordination between New Flyer and the RTC to determine the manufacture schedule, needed resources, and operational and maintenance plans for the new transit vehicles.



## NEW FLYER

Finally, letters of support for the project have been provided some of the region wide stakeholders; including the Nevada Department of Transportation and members of the Nevada congressional delegation.

### 6. Results of Benefit-Cost Analysis

A formal Benefit-Cost Analysis (BCA) was conducted for this project using accepted best practices and FY 2015 TIGER recommended monetized values. A full BCA, including data sources, methodology, and Excel spreadsheets are available as an attachment to this application and on the project support website: <http://www.rtcnv.com/planning-engineering/rtc-projects/green-fleet-procurement/>

The Net Present Value (2016 \$) of total project costs for the 2016-2037 (22-year) analysis period is valued at -\$20,044,700. The benefits have an estimated present value of \$34,324,540 over the analysis period, yielding a 1.71 BCA ratio (3% discount rate, 2016 \$).

#### Benefit-Cost Analysis Assumptions

**Project Cost:** The total cost for the project is -\$20,044,700 (3%, 2016 \$) for planning, procurement and CNG facility operations. Other cost categories have been factored into the overall analysis, but their costs are outweighed by project benefits and are reflected by reduced benefit amounts.

For example, lifetime fuel costs were analyzed for both the existing 28 diesel vehicles and the new 28 new CNG vehicles. The lower fuel price of CNG is a project benefit. But, the benefit amount is determined as the cost difference between projected RTC expenditures for diesel and CNG.

Nominal planning costs are included for RTC staff to identify capital rolling stock needs, create and administer a Request for Proposals, and ultimately award a manufacturing contract. Procurement costs also include an RTC contract with a 3rd party to ensure transit vehicles are manufactured and delivered in conformance with the required specifications. These funds are anticipated to be awarded through a competitive RFP after award of TIGER funds. The total cost associated with the services provided by this construction management firm is \$150,000 and is scheduled to occur in 2016. Right-of-way acquisition is not needed.

#### Benefits Evaluated

##### Economic Competitiveness

- Transit Travel Time Savings: Replacing old, unreliable diesel buses that are prone to in-service break-downs reduce transit travel times by increasing transit fleet reliability.
- Transit Fleet Operating Cost Savings: Reductions in transit operating costs due to lower priced compressed natural gas as compared to diesel fuel.
- Energy Security Benefits: Reductions in the economic cost of oil imports.



Figure 17: Summary Results of Benefit Cost Analysis

Calendar Year	Project Year	Cost – Planning & Procurement	Cost – CNG Facility Operation	Benefit – CNG Bus Maintenance	Benefit – CNG Fuel Cost Savings	Benefit – Reduction in Oil Imports	Benefit – Transit Travel Time Savings	Benefit – Reduced Emissions	Benefit – Replacement Deferral	Total Benefit – Not Discounted	Total 3% Discount Rate - 2016 \$	Total 7% Discount Rate - 2016 \$
2016	-1	-\$150,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$150,000	-\$150,000	-\$150,000
2017	0	-\$20,510,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$20,510,000	-\$19,894,700	-\$19,074,300
<b>Full Year Project Open</b>												
2018 (opening)	1	\$0	-\$97,552	\$205,070	\$292,857	\$196,933	\$400,681	\$243,767	\$0	\$1,241,756	\$1,168,368	\$802,739
2019	2	\$0	-\$100,235	\$220,367	\$298,632	\$202,349	\$409,544	\$250,784	\$0	\$1,281,441	\$1,169,537	\$770,985
2020	3	\$0	-\$102,991	\$226,427	\$298,632	\$207,913	\$418,603	\$257,974	\$0	\$1,306,559	\$1,156,687	\$729,488
2021	4	\$0	-\$105,823	\$232,654	\$286,012	\$213,631	\$491,044	\$264,886	\$0	\$1,382,403	\$1,187,116	\$723,023
2022	5	\$0	-\$108,733	\$239,052	\$306,546	\$219,506	\$501,905	\$271,532	\$0	\$1,429,807	\$1,190,989	\$696,935
2023	6	\$0	-\$111,724	\$245,626	\$314,887	\$225,542	\$513,008	\$279,256	\$0	\$1,466,595	\$1,184,983	\$664,413
2024	7	\$0	-\$114,796	\$225,195	\$268,687	\$231,744	\$524,355	\$286,720	\$186,357	\$1,608,263	\$1,260,465	\$687,746
2025	8	\$0	-\$117,953	\$259,321	\$273,393	\$238,117	\$464,494	\$294,372	\$26,808,797	\$28,220,541	\$21,454,132	\$13,515,772
2026	9	\$0	-\$121,197	\$266,452	\$283,873	\$244,666	\$547,809	\$302,228	\$0	\$1,523,832	\$1,123,710	\$549,848
2027	10	\$0	-\$124,529	\$273,780	\$306,973	\$251,394	\$559,927	\$310,287	\$0	\$1,577,831	\$1,128,625	\$530,589
2028	11	\$0	-\$127,954	\$281,309	\$317,454	\$258,307	\$648,621	\$318,998	\$0	\$1,696,735	\$1,177,266	\$536,345
2029	12	\$0	-\$131,473	\$289,045	\$332,640	\$265,411	\$584,972	\$327,482	\$0	\$1,668,076	\$1,122,660	\$485,354
<b>End of Transit Vehicle Design Life</b>												
2030	13	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2031	14	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2032	15	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2033	16	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2034	17	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2035	18	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2036	19	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2037	20	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL</b>			-\$22,024,959 undiscounted							\$23,743,838 undiscounted	\$14,279,840 costs included	\$1,468,937 costs included

**Sustainability**

- Emissions Reductions: Measurable reductions in Air Quality Criteria Pollutant emissions and a reduction in the Social Cost of Carbon emissions.

**State of Good Repair**

- Maintenance and Repair Savings: Reductions in maintenance expenditures due to the replacement of diesel buses with high repair costs. This results in a reduced life cycle cost.
- Deferral of Complete Replacement: Reductions in future expenditures for transit procurement.

The project does have additional minor, harder to quantify benefits for Quality of Life and Safety; but they are simply noted and not included in the monetized analysis.

**7. Project Readiness**

**7.1 Technical Feasibility**

Under Nevada Revised Statutes, the RTC is responsible for the oversight of local funds for transportation projects in Southern Nevada. This history of cooperation on major projects with partner local agencies gives the RTC the technical expertise to oversee the implementation of this project.

The RTC brings many years of experience in procuring and developing transit infrastructure – the two most recent examples being TIGER funding awarded in 2009 and 2014 to develop BRT infrastructure.

**The TIGER I funded Sahara Avenue BRT project was the first TIGER I funded construction project to reach substantial completion in the entire nation.**



As part of the 2014 TIGER grant program, the RTC was awarded funding for the Flamingo Road Corridor Improvements project. This approximately \$44,600,000 project broke ground on March 10, 2015 and will provide much needed improvements in transit travel times and reliability. More information on the Flamingo project can be found here:

<http://www.rtcnv.com/planning-engineering/rtc-projects/flamingo/>

Both of these previous TIGER projects successfully coordinated with the USDOT OST and ultimately the FTA to successfully create and implement a project grant agreement. The RTC intends to use this same interagency coordination approach as soon as FY 2016 TIGER funding is made available for this project.

This project's scope only includes the procurement of transit vehicles. Therefore, there are no right-of-way considerations or environmental considerations (sensitive species, elevation, stormwater, soils, geology, etc.) that would cause unanticipated delay to the project. Additionally, vehicles procured by the project will be operated on public roads within the developed area of Southern Nevada.

Additionally, the bus models to be procured by this project have been purchased by the RTC before and are currently operating in productive revenue service. The RTC has experience operating, maintaining and performing complex repairs on exactly the same type of buses to be procured by this project.

## 7.2 Financial Feasibility

### Use of Funds Table

As the designated recipient of FTA funds for the Las Vegas Urbanized Area, the RTC has an es-

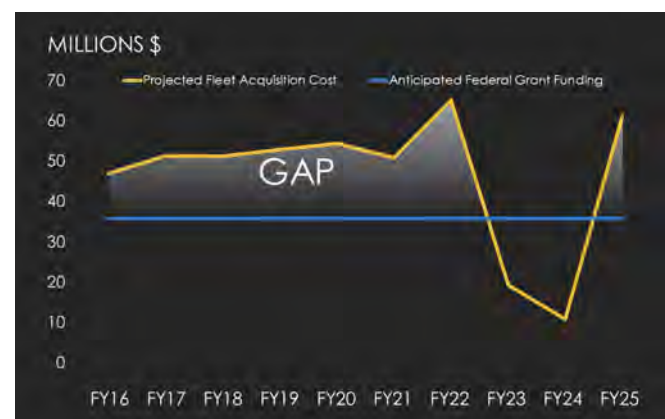
tablished record for managing federal grants and the oversight of federally funded projects. RTC Transit has completed a series of major capital investments, many of which were funded under the American Recovery and Reinvestment Act.

The RTC expects to receive approximately \$36 million annually in combined apportionments of the Urbanized Area Formula Program (5307) and the Bus and Bus Facilities Program (5339). The majority of this is currently scheduled for the fixed route and paratransit vehicle fleet replacement and expansion programs.

**The RTC is requesting TIGER funding because current and projected revenues of the 5307 and 5339 programs does not keep pace with capital rolling stock replacement needs.**

As demonstrated in Figure 18 below, from years 2016 to 2022 there is a funding gap of approximately \$18 million annually between the RTC's bus replacement needs and the estimated federal funding available.

Figure 18: Funding Gap for Fixed Route Vehicle Replacement



New Flyer Transit Vehicles	Quantity	Estimated Unit Cost	Total Cost
60-foot Articulated CNG Bus	16	\$860,000	\$13,760,000
40-foot CNG Bus	12	\$550,714	\$6,600,000
<b>Total</b>	<b>28</b>		<b>\$20,360,000</b>



### 7.3 Project Schedule

All transit vehicles to be procured by this project are anticipated to be delivered to the RTC by June 2017.

#### Project Schedule

The RTC is contractually protected if TIGER funds are awarded and New Flyer is unable to timely deliver transit vehicles. Liquidated damages are included in the contract to protect the RTC for delayed delivery milestones, and if the contract is terminated for contractor default the RTC is only required to pay for goods and services received to date.

Bus Manufacture RFP	From	To
Issue RFP	September 2014	November 2014
Proposals due	November 2014	November 2014
RTC Board selection of proposer & contract approval	February 2015	February 2015
Project Milestones	From	To
2016 TIGER funding announced (estimate)	October 2016	November 2016
FTA Grant	December 2016	February 2017
RTC exercise contract options	April 2016	April 2016
Anticipated NTP	May 2016	May 2016
New Flyer fleet build	September 2016	June 2017
RTC final acceptance of last bus	June 2017	June 2017

### 7.4 Assessment of Project Risks and Mitigation Strategies

Because the project is solely a procurement activity, the overall project risk is extremely low. The procurement contract is already in place, and in April 2015 New Flyer delivered to the RTC the first bus under this contract. This first bus was a "pilot bus" that will undergo extensive testing prior to the RTC providing final written acceptance.

The initial contract was worth \$39,516,420 to deliver 35 40-foot CNG buses and 20 60-foot CNG buses. The initial contract also contained options for the RTC to procure an additional 150 40-foot CNG buses and 100 60-foot CNG buses within the next 5 years.

The TIGER grant will be used to fund options contained within an existing contract.

### 7.5 Environmental Approvals

Procurement and replacement of transit capital rolling stock is considered a Categorical Exclusion (CE) under the National Environmental Policy Act and as interpreted and implemented by the Federal Transit Administration (FTA). No further environmental work or permits are required for this project.

The old diesel transit vehicles to be replaced will be recycled and disposed of in accordance with federal, state and local environmental requirements. Additionally, any buses to be replaced that were originally purchased with federal funds will be withdrawn from service in accordance with the original terms and conditions of that agreement.



## 7.6 State and Local Planning

This project is included in the fiscally constrained 2013-2035 Regional Transportation Plan (RTP). This project would be considered part of the scope and intent of the RTP project labeled:

- *Bus Fleet Replacement: Acquire buses for the fixed route bus replacement program*

The timeline for this project is labeled as “ongoing” over the 20-year planning analysis period and is identified as requiring \$621 million over that timeframe. TIGER funds, and this project’s local match, would be used as a contribution towards this total projected 20-year project cost. The inclusion of this project in the RTP is indicative of how great the need is for new buses – especially CNG fueled vehicles that can reduce operation expenses. The over 400 transit vehicles currently in the fixed route fleet will go through two complete replacement cycles during the course of the 20-year RTP.

Once it is announced that this project has been selected to receive FY 2016 TIGER funds, the RTC, as the MPO for the area, will prepare an amendment to identify construction funding for the project in the TIP. The TIP amendment will be presented to the RTC Board of Commissioners for adoption.

Since the project is included in the current RTP, it has undergone an extensive public review and comment process, and has received all necessary air quality conformity approvals. The RTC found the RTP, and all projects included in it, to be in conformity with the requirements of the Clean Air Act Amendments of 1990, the relevant sections of the Final Conformity Rule 40 CFR Part 93, and the procedures set forth in the Clark County Transportation Conformity State Implementation Plans. Indeed, a primary purpose for funding and implementing this project is its benefit toward improved regional air quality.

## 7.7 Legislative Approvals

No legislative approvals are needed for this project.

In approving the original contract with New Flyer of America, the RTC Board of Commissioners also approved all of the options contained within that contract to procure additional buses. The 28 buses proposed to be purchased with TIGER and local match funds will be purchased as options to this existing approved contract.

This ensures the project has both price certainty, and schedule expediency, as the competitive RFP process for a vehicle manufacturer has already been completed.

The RTC’s contribution of the 35% local match will come from local sales tax revenues dedicated towards this type of project activity, and are considered a secured funding source controlled entirely by the RTC.

## 7.8 Opportunities for Low-Income Workers

The approved and current contract with New Flyer of America, Inc. was solicited with all standard federal conditions included. The RTC anticipates using federal funds to purchase buses under this contract, regardless if TIGER funds are awarded or not. Standard Federal Conditions are built into all RTC procurement contracts. The scope and cost of the project is not such as to warrant special hiring programs mandated by the RTC to New Flyer that go beyond meeting the procedures required in the Federal Conditions.

## 7.9 Opportunities for Small Businesses and Disadvantaged Business Enterprises (DBE)

RTC strongly encourages DBE participation in its procurement of goods and services. For roadway and transit projects implemented by the RTC, the DBE liaison officer attends all pre-bid and project meetings and is committed to meeting DBE participation goals. Additionally, the RTC assists in finding suitable DBE contractors. The RTC also maintains lists of women, minority, and veteran-



owned businesses and encourages their use when no suitable certified DBE can be found.

However, the vehicles to be procured by this project will be manufactured under the purview of New Flyer. New Flyer has a DBE Approval Certification on file with the FTA, which includes an annual DBE subcontracting participation goal.

New Flyer’s DBE program, as required by CFR 49 Part 26 and approved by the USDOT, is included in its contract with the RTC and is a binding legal obligation. New Flyer has agreed to take all necessary steps to ensure nondiscrimination in the award and administration of all third party contract and sub-agreements supported with Federal assistance derived from USDOT. This includes potential TIGER funds awarded to the RTC for use in purchasing New Flyer transit vehicles.

### 7.10 Community Involvement

RTC works with the Nevada Minority Business Coalition, the Small Business Development Center at the University of Nevada – Las Vegas and similar organizations to increase awareness of contracting opportunities and sends these organizations pre-bid notices for circulation to their members.

This project is a priority to the RTC and it has the full support of the community. Replacement of the RTC’s transit rolling stock was included in the region’s long-range RTP, which included extensive public involvement. Additionally, both local and national surveys have found that the comfort, cleanliness, efficiency, reliability and accessibility of transit are major determinants in its level of support and utilization.

### 7.11 Labor practices, Civil Rights, and Equal Opportunity

Compliance with federal and State procurement laws was ensured through the original bid evaluation process, which includes checks to ensure contractors are properly registered and not subject to disbarment.

New Flyer is contractually obligated to comply, and assure the compliance by its subcontractors, with all requirements of the Title VI of the Civil Rights Act of 1964, as amended, 42 USC Section 2000d, and USDOT regulations, “Nondiscrimination in Federally-Assisted Programs of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act,” 49 CFR Part 21; and any implementing requirements FTA may issue.

New Flyer agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, sex, disability, age, or national origin. The contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, sex, disability, age or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

Standard contract language relates to these issues, and the RTC will procure an independent consultant firm to provide oversight services that will certify these matters in field inspections at the New Flyer manufacturing facility in St. Cloud, Minnesota.



## 8. Federal Wage Rate Certification

I, the undersigned, hereby certify that the Regional Transportation Commission of Southern Nevada will comply with the requirements of subchapter IV of Chapter 31 of Title 40, United States Code (federal wage rate requirements), as required by the "Consolidated Appropriations Act, 2016".

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Tina Quigley, General Manager  
RTC of Southern Nevada