



DEPARTMENT OF TRANSPORTATION

Isiah Leggett
County Executive

February 17, 2017

Al R. Roshdieh
Director

Ms. Terry Garcia Crews, Regional Administrator
U.S. Department of Transportation
Federal Transit Administration, Region III
1760 Market Street, Suite 500
Philadelphia, PA 19103

Dear Ms. Garcia Crews:

The Montgomery County Department of Transportation would like to thank the U.S. Department of Transportation for selecting our US 29 Bus Rapid Transit (BRT) Improvements Project for a TIGER grant in 2016. We are excited about moving this important project forward in partnership with the Federal Transit Administration.

The US 29 BRT Improvements Project will transform mobility options with the implementation of a 14-mile, premium, branded, limited-stop BRT service. This new service will improve transit travel time, improve the quality of transit service, and increase opportunity for a broad range of users, including a significant number of minority and low-income riders living along this highly congested corridor. The project will improve passenger transit mobility by connecting riders to high density housing and employment centers and is vital to the success of significant new private development and employment anticipated along the corridor.

This letter requests changes to the scope of work that was included in the original application, as follows:

- There will be no managed/HOV lanes implemented as part of the US 29 BRT project. The southern portion of the BRT line that was previously indicated as running in a managed lane will run in mixed traffic.
 - There will be no new Bus On Shoulder (BOS) lanes implemented as part of the BRT project. The BRT will utilize the existing BOS in the northern portion of the corridor.
 - The two stations in the Castle Ridge/Castle Terrace community have been consolidated.
- All other elements of the project included in the original application will still be implemented as part of this project. As detailed in the attached White Paper, the County's US 29 BRT project will still address the original goals of the project and remains aligned with the TIGER Discretionary Grant program selection criteria. Specifically:
- The redefined US 29 BRT project is anticipated to have only a slight reduction (13-18 percent) in BRT ridership as compared to the project previously scoped. In opening year, the BRT is still expected to carry **13,000 riders** and the system is anticipated to carry **20,000 riders** by 2040. The US 29 BRT line has the potential to outperform the majority of BRT lines in the United States with regard to daily ridership.
 - The redefined project reduces the overall project cost from \$67 million to \$39 million.

Office of the Director

101 Monroe Street, 10th Floor • Rockville, Maryland 20850 • 240-777-7170 • 240-777-7178 FAX
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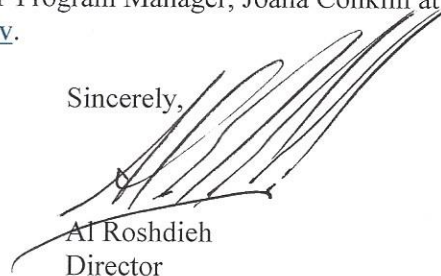
Located one block west of the Rockville Metro Station

The County plans to fund the non-TIGER portion of the project (\$29 million) with local funds, anticipated to be approved in our Capital Improvements Program in May 2017.

- Due to the strong anticipated ridership and lower project cost, the US 29 BRT project maintains a **high benefit-cost ratio of 3.04 to 4.08**. The project is anticipated to realize **\$269-\$520 million in net benefit**.
- The project will meet all of the goals envisioned in the original TIGER grant application, including improving the quality of transit service on the corridor, improving mobility opportunities and choices, enhancing quality of life, supporting master planned development, and providing a sustainable and cost effective transportation option.
- The US 29 BRT project implementation schedule remains unchanged from the original grant application. Montgomery County maintains an aggressive plan to have the US 29 BRT service on the ground by 2020.

We thank you for your consideration in approving our requested scope change. If you have any additional questions, please feel free to contact our BRT Program Manager, Joana Conklin at 240-777-7195 or Joana.Conklin@montgomerycountymd.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'Al Roshdieh', written over a horizontal line.

Al Roshdieh
Director

From: [Long, Ryan \(FTA\)](#)
To: [Conklin, Joana](#)
Cc: [Lauren Molesworth \(L.Molesworth@mta.maryland.gov\)](#); [Koenig, Daniel \(FTA\)](#); [Zubrzycki, Kathleen \(FTA\)](#)
Subject: US BRT Scope and Budget change response - US DOT
Date: Friday, April 7, 2017 4:26:12 PM

Hi Joana –

Great news, the US 29 scope and budget change request has just been approved! Thank you (and your staff) for your assistance in getting this through DOT. At this time, I'm assuming the County and MTA would proceed full speed on the NEPA approval process. Please let me know what has been completed thus far (or in the works) especially regarding Section 106.

Have a great weekend,
Ryan

US 29 Bus Rapid Transit Improvements Project – Request for Scope Modification

The Montgomery County Department of Transportation (MCDOT) with support from the Maryland Transit Administration is planning to design and construct a bus rapid transit (BRT) system along US 29 that meets the immediate needs of transit populations along this busy corridor. The US 29 Bus Rapid Transit (BRT) Improvements Project will transform mobility options with the implementation of a 14-mile, premium, branded, limited-stop BRT service. This

white paper clarifies the project scope based on additional planning and engineering work that has been completed since the original TIGER grant application, and also describes changes to the scope of work that was included in the original application. The only changes to scope are as follows:

- There will be no managed/HOV lanes implemented as part of the US 29 BRT project. The southern portion of the BRT line that was previously indicated as running in a managed lane will run in mixed traffic.
- There will be no new Bus On Shoulder (BOS) lanes implemented as part of the BRT project. The BRT will utilize the existing BOS in the northern portion of the corridor.
- The two stations in the Castle Ridge/Castle Terrace community have been consolidated

Points of Contact:

Ms. Joana Conklin
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Lauren Molesworth
Maryland Transit Administration
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Revised Project Summary

Project Name: US 29 Bus Rapid Transit (BRT) Improvements

Project Type: Premium, limited-stop Bus Rapid Transit service and Bikeshare

Project Location: Montgomery County, Maryland; 6th and 8th Congressional Districts of Maryland; National Capital Region Transportation Planning Board (TPB) Metropolitan Planning Organization

Total Project Cost: \$39 million

Committed Local Match: \$29 million (74%)

TIGER funds: \$10 million (26%)

into one station, given the close proximity of these two initially planned stations and the ability for the BRT to serve the community adequately with one station.

- 14 articulated 60-foot BRT vehicles with sleek styling, branding, and amenities such as WiFi and the ability to accommodate bicycles on-board (number of vehicles has been increased from 13 included in original TIGER application due to recent operational analysis);
- 11 BRT station locations (18 station platforms) including level-boarding and upgraded amenities such as real-time bus arrival information and off-board fare collection (original TIGER application included 12 station-locations; MCDOT has decided to consolidate two of the stations that were very close to each other);
- The project as currently proposed does not include any shoulder reconstruction and new roadway construction in other locations.

All remaining project elements in the original TIGER application scope remain unchanged. The alignment for the US 29 BRT service has not changed since the County's original TIGER grant application was submitted, nor has the Purpose and Need for the project. Specifically, the Purpose Statement for the project remains as follows: "The purpose of the project is to provide a high frequency, reliable, premium transit service operating within existing right-of-way and pavement, to the extent possible, between the Silver Spring Transit Center and the Burtonsville Park & Ride with service commencing by 2020".

Further Justification for Proposed Scope Change

One of the significant advantages of the US 29 BRT project is that it can operate on existing roadway infrastructure. The northern portion of the corridor has existing, signed, outside BOS infrastructure and interchange ramps that are used by local and express buses during peak periods and can be used by the new BRT service. Over the last several months, the Maryland Department of Transportation (MDOT) has been studying the potential for constructing additional BOS lanes on the inside shoulder of the northern portion of US 29, which would eliminate the potential conflict between the outside BOS and ramps used by general purpose traffic. However, MDOT's study has found that the cost of constructing these new BOS lanes (estimated to be as high as \$90 million) would far exceed the level of funding currently available by either the State or County for these improvements. The County's original TIGER grant application included \$20 million for BOS improvements between Burtonsville and Tech Road. However, given the recent cost estimate provided by MDOT to implement BOS improvements, the County has decided to utilize the existing BOS infrastructure. MCDOT will coordinate with the State on prioritizing maintenance of the existing BOS on US 29 so that it remains in a State of Good Repair for use by all buses on the corridor.

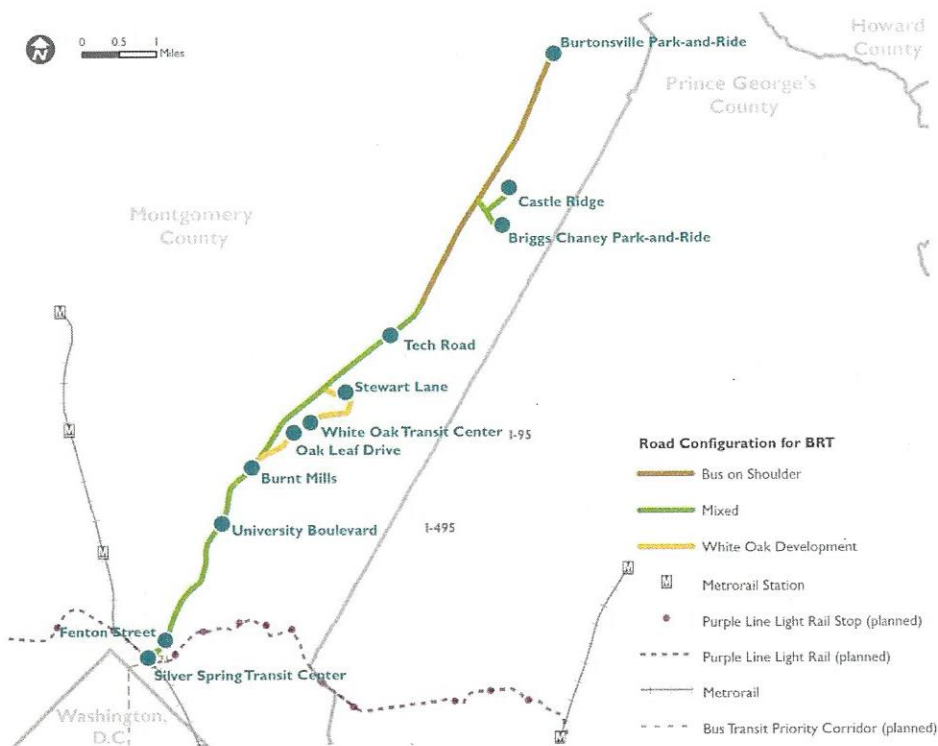
MDOT has also been studying the feasibility of implementing High Occupancy Vehicle (HOV) lanes in the southern portion of the US 29 corridor. While their study has found that HOV lanes do have the potential to increase overall HOV mode share, the traffic analysis is inconclusive to date and indicates some operational challenges for both buses and general traffic along the corridor. At this time, MDOT has not approved the implementation of HOV lanes on US 29. The County's original TIGER grant application included \$13 million for HOV lanes in the southern portion of the US 29 corridor. These roadway changes are being eliminated from the scope of the BRT project. The County will continue to support MDOT's efforts to evaluate the feasibility of HOV lane implementation along the corridor, but this operational change is not necessary for the BRT service and will not be implemented as part of the BRT project. The BRT will operate in mixed traffic in the southern portion of the corridor. If, at some future time, MDOT implements an HOV lane on US 29 the BRT would be able to potentially use this lane if such use would be advantageous to the service.

The maps on the following page graphically show the change in scope proposed for the US 29 BRT project.

Original US 29 BRT Proposal



Revised US 29 BRT Proposal



Grant Funds and Sources/Uses of Project Funds

MCDOT's original request was for \$33.6 million in TIGER VIII funding, approximately 50 percent of a total project cost of \$67.1 million. The TIGER grant award for the US 29 project was \$10 million, or approximately 30 percent of the requested amount. A revised project budget is included below for the project defined in this white paper. ***The revised budget includes a 74% local funding match for the project.*** All of the components in the original request are included in this budget except for the roadway improvements (i.e., no managed HOV lanes and no new Bus on Shoulder BOS improvements). Some of the project elements have also been adjusted due to more recent project estimates becoming available during the planning and design process. The revised budget does not include roadway upgrades which, are not necessary for the implementation of a successful transit project in this corridor, but were included in the original proposal.

Proposed Change in Project Budget

The table on the following page shows the revised project budget, including changes from the budget proposed in the original US 29 BRT TIGER application. The revised budget represents a 42% decrease in total project cost.

Selection Criteria

The project's alignment with the TIGER Discretionary Grant program selection criteria was outlined in the original grant application and is not materially affected by this change in project scope.

Results of Updated Benefit-Cost Analysis

The new US 29 BRT will provide a new, branded, reliable service with limited stops, improved passenger amenities, and shorter dwell times. This service will greatly benefit the US 29 corridor, as shown in a revised benefit-cost analysis (BCA) conducted for the project as defined in this white paper. The analysis assumes the BRT will operate in the existing Bus-On-Shoulder infrastructure to the north and in mixed traffic in the south. This differs from the BCA in the County's original TIGER application, which assumed HOV lanes in the south. However, the new analysis also assumes the lower assumed project cost.

Proposed Changes in US 29 BRT Project Budget

Description of Scope Item	Original Cost	Revised Cost	Cost Difference	Reason for Change
BRT Stations and Stops	\$8,232,708	\$13,000,000	\$4,767,292	Station cost estimate updated based on additional planning/design work completed since original grant application.
Transit Signal Priority	\$860,000	\$860,000	\$0	N/A
Vehicles	\$13,000,000	\$14,000,000	\$1,000,000	Increased number of vehicles from 13 to 14 based on recent VISSIM traffic simulation analysis
Bicycle & Pedestrian Improvements	\$2,355,000	\$2,355,000	\$0	N/A
Roadway Improvements	\$33,000,000	\$0	(\$33,000,000)	Roadway improvements eliminated from scope of project
Marketing & Outreach	\$1,250,000	\$1,250,000	\$0	N/A
Planning/Design	\$6,500,000	\$6,500,000	\$0	N/A
Overhead & Grant Administration (3%)	\$1,955,931	\$1,138,950	(\$816,981)	Reduced due to lower overall project cost
TOTAL	\$67,153,639	\$39,103,950	(\$28,049,689)	Project cost has been adjusted to account for reduced scope and additional planning and design of stations.
LOCAL (COUNTY) FUNDS				\$29,103,950
TIGER FUNDS				\$10,000,000

Ridership on the new US 29 BRT service was re-evaluated without the assumption of HOV lanes in the southern portion of the corridor, which caused a slight reduction in BRT travel speed. **It is anticipated that the US 29 BRT will still carry 13,000 riders on opening year (2019) and approximately 20,000 riders by 2040.** This represents a slight reduction from earlier estimates of 16,000 in opening year and 23,000 in 2040.

A formal BCA was conducted for the project in accordance with USDOT's recommended methodology for a period of 21 years, starting with the first full year of operations in 2020 and ending in 2040. The project benefits and costs were discounted to current dollars using the USDOT's recommended 7.0 percent discount rate and the alternative 3.0 percent discount rate. A summary of the BCA is shown in the table below. All monetized benefits and costs discussed below are in 2015 dollars and reflect net present values (NPV).

The US29 Bus Rapid Transit project costs include design and construction as well as annual operating and maintenance costs. As shown in the chart, the monetized project cost over 21 years is \$132 million (7.0 percent discount rate) or \$169 million (3.0 percent discount rate). **While the project requires notable investment, the project's BCA indicates that the benefits greatly outweigh the costs.**

Benefit-Cost Analysis Summary (2015\$)				
		Discount Rate		
		No Discount	7%	3%
Benefits				
Good Repair	Qualitative at this time			
Economic	User Time Savings	\$605,396,242	\$218,163,568	\$379,785,330
Competitiveness	User Cost Savings	\$111,141,990	\$41,157,061	\$70,565,878
Quality of Life	Qualitative at this time			
Sustainability	Greenhouse Gas & Emissions Cost Reductions	\$1,642,439	\$670,864	\$1,089,589
Safety	Accident Reduction	\$368,635,273	\$141,231,927	\$237,808,961
	Total Benefits	\$1,086,815,944	\$401,223,419	\$689,249,758
Costs				
	Capital Costs	\$111,609,505	\$44,607,834	\$63,454,217
	O&M Costs	\$122,293,395	\$87,193,500	\$105,491,357
	Total Costs	\$233,902,900	\$131,801,335	\$168,945,574
Benefits - Costs		\$852,913,044	\$269,422,084	\$520,304,184
Benefit Cost Ratio			3.04	4.08

The project is expected to provide substantial benefits in the form of travel time savings for users, reduced vehicle operating costs for motorists who switch to BRT, and crash reductions

along key segments of the corridor. When monetized, these benefits amount to \$401 million (7.0 percent discount rate) or \$689 million (3.0 percent discount rate) – yielding a benefit-cost ratio of 3.04 to 4.08 [note that the original cost-benefit ratios were 3.18 and 4.09 respectively] Understanding the inherent risks of double-counting benefits, the assumptions used to quantify these benefits were conservative and pragmatic. **These cost-benefit ratios are essentially the same as the project that was defined in the County’s original TIGER application.**

Project Readiness/Schedule

The County plans to continue with its aggressive project schedule to have the US 29 BRT operational by 2020. The current project timeline ***has not changed since the TIGER application submission.***

Summary

In summary, the revised US 29 BRT project as defined in this paper is proven to be a beneficial transit project in its own accord, without the roadway improvements scoped in the original project. Specifically:

- The redefined US 29 BRT project is anticipated to have only a slight reduction (13-18 percent) in BRT ridership as compared to the project previously scoped. In opening year, the BRT is still expected to carry 13,000 riders and the system is anticipated to carry 20,000 riders by 2040.
- Due to the strong anticipated ridership and lower project cost, the US 29 BRT project maintains a high benefit-cost ratio of 3.04 to 4.08. The project is anticipated to realize \$269-\$520 million in net benefit.
- The project will meet all of the goals envisioned in the original TIGER grant application, including improving the quality of transit service on the corridor, improving mobility opportunities and choices, enhancing quality of life, supporting master planned development, and providing a sustainable and cost effective transportation option.
- The project remains aligned with the TIGER Discretionary Grant program selection criteria.
- The US 29 BRT project implementation schedule remains unchanged from the original grant application. Montgomery County maintains an aggressive plan to have the US 29 BRT service on the ground by 2020.