

Overview of the Bike-Sharing Component of the TPB TIGER I Application

The Proposed Project:

A regional bicycle-sharing system with 3250 bikes placed at 325 strategic locations, such as transit stations, points of major activity, and major residential locations, increases connectivity and feasibility of using transit throughout the region. The capital grant request was specifically for 2,250 bicycles at 225 stations throughout the region. The District is using additional federal funds for 1000 additional bikes and 100 stations.



The bike-sharing system will work similar to a car-sharing system, such as ZipCar, where members pay a fee and have access to any available bike throughout the regional system. The system relies on solar-powered, wireless-enabled bicycle docking stations that provide secure storage and easy check-out of bicycles. The program builds off of the success of the District's pilot bike-sharing program of 500 bikes, which sparked interest in local jurisdictions throughout the region, underscoring the applicability of a connected, regional system of bike-sharing.

Proposed Partners/Locations:

1. City of Alexandria (200 bikes)
2. Arlington County (750 bikes)
3. District of Columbia Department of Transportation (1000 bikes)

And 300 bikes dispersed throughout:

4. Bethesda
5. College Park
6. City of Fairfax
7. Hyattsville
8. National Harbor
9. Silver Spring

Long-term Benefits:

State of Good Repair

- ***Bike-sharing can be sustained by user fees and advertising revenue***

Each participating local jurisdiction has committed to providing necessary operating costs. However, revenues are expected from user fees and advertising revenue. It is projected that annual revenues will exceed annual O&M costs.

Economic Competitiveness

- ***Bike-sharing increases transit accessibility to 500,000 jobs and 1 million workers***

Bike-sharing extends the current reach of high quality transit to almost 1.5 million people who currently must drive or take a local bus trip to access a rail station or rapid bus route. The bike-sharing system will allow these riders to use transit for a door-to-door journey to work, opening up newly accessible jobs to more than one million workers. Bike-sharing also generates more than 80 million trips previously not taken over the 20 year period. These new trips will certainly generate economic activity that likely would not have occurred in the region otherwise. Bike-sharing also further opens up the region to non-drivers, such as the youth population.

Livability

- ***Bike-sharing adds tens of thousands of bikers to the region's streets every day.***

The bike-sharing system will generate almost 1 trillion additional bicycle trips over the 20 year period in 5 major urban and suburban jurisdictions, with almost 150,000 using the system every day by 2030.

- ***Bike-sharing provides the lowest cost transit possible and increases access to other low-cost transit***

Bike-sharing will allow more than 2.5 million people to either replace short auto or transit trips with a low-cost, healthy option and save money, or to replace current walk trips with new bicycling trips and save time. Bike-sharing provides the lowest per mile cost of any available mode by far, creating a regional consumer fuel savings of around \$1800 per day. Bike-sharing also extends the current reach of high quality transit to almost 1.5 million people, further providing access to affordable options.

- ***Increased cycling results in measurable health care cost savings***

The CDC finds that 25% of the population report no physical activity at all and therefore do not meet their recommended 30 minutes of physical activity per day. There is a measurable health care cost savings associated with meeting the activity requirement of between \$20 and \$330 per year. In aggregate, the bike-sharing system is estimated to save the region more than \$5 million in health care costs over the 20 year period.

- ***Ideal bike-sharing locations have been determined based on land use***

The specific bike-sharing locations are decided based on transportation services and land use, such residential and employment densities, existing bike infrastructure and proximate transit facilities. For a map of ideal bike-sharing locations, please see Appendix 6 of the application: <http://www.mwcog.org/transportation/TIGER/>.

Sustainability

- ***Bike-sharing promotes a zero emissions, non-motorized mode and reduces emissions***

The bike-sharing system provides environmental benefits primarily from shifting trips that were previously made by automobile to bike and by increasing transit ridership. In aggregate, the system is estimated to reduce more than 50,000 daily VMT by the end of the 20 year horizon. This translates into more than 65,000 tons of CO₂, 60 tons of PM_{2.5}, 60 tons of NO_x, and 110 tons of VOCs over the 20 year period.

Safety

- ***Bike-sharing makes biking safer for all cyclists by putting more cyclists on the road, replacing cars***

Shifting trips from private cars to bicycles reduces the number of cars on the road and VMT, thus reducing overall accident risk. Additionally, there is empirical evidence that simply increasing the number of cyclists on the roads makes cycling a safer mode of travel for all users. For instance, in a study of American and European cities, it was found that while the number of cyclists can double, the number of accidents would only increase by 32%.

Benefit Cost Analysis

Total Costs	\$ (378,647,231)
Capital	\$ (17,928,258)
O&M	\$ (122,677,609)
Accidents (bicycle)	\$ (238,041,365)

Total Benefits	\$ 1,080,723,751
User Cost Savings	\$ 338,167,341
Travel Time Cost Savings	\$ 646,428,793
Increased Access	\$ 65,430,495
Congestion Reduction	\$ 9,603,642
Environmental Benefits (emissions)	\$ 14,131,877
Public Health Benefits	\$ 3,404,697
Reduced Accidents (auto)	\$ 3,556,905

The major costs in the model are capital, O&M, and increased accidents. Capital costs include initial system set-up, such as bicycles, bike racks, and card-readers, and replacement costs every 6 years. The operating cost includes system operations, maintenance labor, and an 8% theft and vandalism rate. Accident costs reflect the possible increase in accidents from adding more cyclists to the road.

The major benefits are: user cost savings, travel time savings, increased access, congestion reduction, emissions reduction, improved public health, and accident reduction.