2015-2017 Regional Mobility Grant Application: Step One

Welcome to the first of two steps in the grant application process. Included in this overview are important dates and examples to help you calculate your project's reductions in vehicle trips (VT) and vehicle miles traveled (VMT). Once you're ready to submit Step One of your application, be sure to include a brief project description along with your estimated VT and VMT reductions.

Step Two of the application process can be worked on concurrently with Step One, but it cannot be submitted until Step One has been approved by WSDOT.

WSDOT staff is available to assist applicants with calculating their project's reductions in VT and VMT, but it is the applicant's responsibility to obtain WSDOT's approval by the dates provided below. Applicants must respond to WSDOT staff questions as soon as possible to ensure timely approval. WSDOT staff will make every reasonable effort to review and approve all VT and VMT estimates submitted and, accordingly, will not unreasonably delay or withhold their approval.

Step One of the application process is complete once you receive WSDOT's approval of the project's estimated year 1 and year 4 VT and VMT reductions.

Step Two of the grant application process is complete once you submit the application before the deadline prescribed below.

Changes have been made to the program to align with the Governors Executive Order 2014-04. The changes are as follows:

Increased emphasis on CO_2 reductions has resulted in an increase of 5 points to the Greenhouse Gas Reduction criteria. A corresponding reduction of 5 points was taken from the Readiness to Proceed criteria. The scoring criteria points are as follows:

Scoring criteria points:

- Readiness to Proceed - is now 15 points
- Impact on Congested Corridors - remains at 30 points
- System Integration - remains at 30 points
- Cost Efficiency - remains at 15 points
- Greenhouse Gas Reduction - is now 10 points

Additional changes:

- Park and ride lots - electric vehicle charging stations are required to be a construction item in all new or expanding park and ride lot projects.

- Bus and equipment procurement – applicants can replace a diesel (only) coach with a like kind hybrid, or alternative fuel (electric, CNG, LP) coach. Any new equipment necessary to operate the hybrid or alternative fuel coach is also an eligible grant expense.

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Important Dates:

Aug. 4, 2014	Regional Mobility Grant application and application guide becomes available.
Sept. 5, 2014	First draft of the projects estimated year 1 and year 4 VT and VMT reductions are due no later than 4 p.m.
Oct. 3, 2014	Estimated year 1 and year 4 VT and VMT reduction calculations must be approved by WSDOT no later than 4 p.m.
Oct. 6, 2014	Grant application due. WSDOT must receive applications no later than 4 p.m.

Please send your VT and VMT calculations (showing all work) in Adobe pdf format to Janice Helmann at helmanj@wsdot.wa.gov for review and approval. For more assistance, please call 206-464-1284.

Construction, Operations and Equipment Projects
Applications for these projects should provide these effectiveness measures:

- Annualized reduction in vehicle miles traveled (VMT).
- Annualized reduction of vehicle trips (VT).

As part of the application process, agencies must provide information about underlying assumptions and show calculations that indicate how their projects aim to reduce VT and VMT. Underlying assumptions must be consistent with industry best practices and relevant corridor planning, alternatives analysis, major investment studies, corridor analysis and/or environmental documentation. Agencies should be prepared to show documentation upon request.

Projects which improve transit service efficiency
Travel time improvements may be the most direct metric for measuring project benefits rather than VT and VMT reductions. However, in order to render projects comparable, you must convert these results into VT and VMT reductions. We recommend using the guidance provided in Transit Cooperative Research Program Project A-23A, "Cost and Effectiveness of Selected Bus Rapid Transit Components", which found that ridership increases by approximately 0.3–0.5 percent for every 1 percent decrease in transit travel time. Based on this study it is reasonable to assume a 0.4 percent increase in ridership for every 1 percent decrease in transit travel time.* If there is reason to use another conversion rate you must provide sufficient justification for using it.

**More information is available here*:

- TCRP Report 118, the BRT Practitioner's Guide: http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_118.pdf
- NCHRP Report 616: Multimodal Level of Service Analysis for Urban Streets (see Page 75): http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_616.pdf

WSDOT will conduct a review for accuracy and may contact applicants for clarification, at which time you must provide a range for each effectiveness measure indicating projected performance in the first year of operation and the fourth year of operation.

Examples

Park and Ride

$$\begin{aligned}&Vehicle\ \ Trips\ \ Reduced\ \ Annually\\&=(utilization)*(capacity)*\left(2\frac{trips}{day}\right)*\left(260\frac{days}{year}\right)\end{aligned}$$

Transit Service

$$\begin{aligned}&Vehicle\ \ Trips\ \ Reduced\ \ Annually\\&=\left((daily\ ridership)*\left(260\frac{days}{year}\right)\right)-\left((daily\ bus\ trips)*\left(260\frac{days}{year}\right)\right)\end{aligned}$$

Park and Ride or Transit Service

$$\begin{aligned}&Vehicle\ Miles\ Traveled\ \ Reduced\ \ Annually\\&=(Vehicle\ \ Trips\ \ Reduced\ \ Annually)*\\&\qquad(Average\ \ One\ \ Way\ \ Trip\ \ Length\ \ in\ \ Miles)\end{aligned}$$

Example #1 - Park and ride expansion project

An existing park and ride used primarily by commuters has reached capacity. The expansion of the lot will provide an additional 100 spaces. Average trips leaving the park and ride travel a distance of 13 miles one way. In the opening year utilization is anticipated at 50 percent, with full utilization by year 4.

Key facts:

- Weekday use.
- 100 spaces.
- 50 percent initial utilization, with 100 percent utilization in year 4.

$$\text{Year 1 - Annual Vehicle Trips Reduced}$$

$$= (0.50\ utilization) * (100\ spaces) * \left(2\ \frac{trips}{day}\right) * \left(260\ \frac{days}{year}\right)$$

$$= 26{,}000\ Vehicle\ Trips$$

$$\text{Year 4 - Annual Vehicle Trips Reduced}$$

$$= (1.00\ utilization) * (100\ spaces) * \left(2\ \frac{trips}{day}\right) * \left(260\ \frac{days}{year}\right)$$

$$= 52{,}000\ Vehicle\ Trips$$

Annual VT reduced:
26,000 in year 1 and 52,000 in year 4

$$\text{Year 1 - Annual Vehicle Miles Traveled Reduced}$$

$$= (26{,}000\ \ Vehicle\ \ Trips\ \ \ Reduced) * (13\ miles)$$

$$= 338{,}000\ Vehicle\ Miles\ Traveled$$

$$\text{Year 4 - Annual Vehicle Miles Traveled Reduced}$$

$$= (52{,}000\ \ Vehicle\ \ Trips\ \ \ Reduced) * (13\ miles)$$

$$= 676{,}000\ Vehicle\ Miles\ Traveled$$

Annual VMT reduced:
338,000 in year l and 676,000 in year 4

Example #2 – Transit service project

A new commuter service will provide transit along a congested corridor connecting areas where service does not currently exist. The service will provide 10 trips per weekday. Average ridership is estimated at 240 riders per day in year 1 and 400 riders per day in year 4. The average distance of the service is 15 miles one way.

Key facts:

- Ten trips per weekday.
- Average of 240 riders per day in year 1 and 400 riders per day in year 4.
- Average 15 mile one way rider trip length.

$$\text{Year 1 - Annual Vehicle Trips Reduced}$$

$$= \left((240\ \textit{daily riders}) * \left(260\ \frac{\textit{days}}{\textit{year}} \right) \right) - \left((10\ \textit{daily bus trips}) * \left(260\ \frac{\textit{days}}{\textit{year}} \right) \right)$$

$$= 59{,}800\ \textit{Vehicle Trips}$$

$$\text{Year 4 - Annual Vehicle Trips Reduced}$$

$$= \left((400\ \textit{daily riders}) * \left(260\ \frac{\textit{days}}{\textit{year}} \right) \right) - \left((10\ \textit{daily bus trips}) * \left(260\ \frac{\textit{days}}{\textit{year}} \right) \right)$$

$$= 101{,}400\ \textit{Vehicle Trips}$$

Annual VT reduced:

59,800 in year 1 and 101,400 in year 4

$$\text{Year 1 - Annual Vehicle Miles Traveled Reduced}$$

$$= (59{,}800\ \textit{Vehicle Trips Reduced}) * (15\ \textit{miles})$$

$$= 897{,}000\ \textit{Vehicle Miles Traveled}$$

Annual VMT reduced:

$$\text{Year 4 - Annual Vehicle Miles Traveled Reduced}$$

$$= (101{,}400\ \textit{Vehicle Trips Reduced}) * (15\ \textit{miles})$$

$$= 1{,}521{,}999\ \textit{Vehicle Miles Traveled}$$

So: 897,000 in year 1, and 1,521,000 in year 4

Example #3 – Transit service efficiency improvements

This project will provide transit signal prioritization on a congested corridor served by an existing express bus route. The current route travels approximately 12 miles with an average travel time of 40 minutes. The average rider trip length is assumed to be equivalent to the approximate route length because express service stops only at the beginning and end of the route. Traffic analysis for the corridor indicates that the implementation of transit signal prioritization will reduce the transit travel time by four minutes. There are 10 transit trips per weekday which will continue after the project is implemented. The average daily ridership is 250 riders per day. Ridership has increased by approximately 2 percent each year over the past several years.

Key facts:

- Average trip length is 12 miles.
- Current travel time is 40 minutes.
- Project will reduce the travel time by four minutes.
- Ten transit trips per weekday.
- Current average daily ridership is 250 riders per day.
- Natural ridership growth is approximately 2 percent per year.

Transit Cooperative Research Program Project A-23A, "Cost and Effectiveness of Selected Bus Rapid Transit Components," found that ridership increases by approximately 0.3– 0.5 percent for every 1 percent decrease in transit travel time. Based on this study it is reasonable to assume a 0.4 percent increase in ridership for every 1 percent decrease in transit travel time.

$$Anticipated\ \%\ Travel\ Time\ Reduction = \frac{Travel\ Time\ Reduction\ in\ Minutes}{Total\ Baseline\ Travel\ Time\ in\ Minutes}$$

$$= \frac{4\ Minutes}{40\ Minutes} = 10\%\ Travel\ Time\ Reduction$$

$$\%\ Ridership\ Increase = \%\ Travel\ Time\ Reduction * \frac{.4\%\ Ridership\ Increase}{1\%\ Travel\ Time\ Reduction}$$

$$= 10\%\ Travel\ Time\ Reduction * \frac{.4\%\ Ridership\ Increase}{1\%\ Travel\ Time\ Reduction} = 4\%\ Ridership\ Increase$$

$$Year\ 1\ Ridership\ Increase = (Current\ Ridership) * (\%\ Ridership\ Increase)$$

$$= (250\ Daily\ Riders) * (4\%\ Ridership\ Increase) = 10\ New\ Daily\ Riders$$

$$Annual\ Vehicle\ Trips\ Reduced = (New\ Daily\ Riders) * \left(260\frac{days}{year}\right)$$

Example #3 – Transit service efficiency improvements (*continued*)

Year 1 annual VT reduced:

$$= (10\ New\ Daily\ Riders) * \left(260\frac{days}{year}\right) = 2{,}600\ Annual\ Vehicle\ Trips\ Reduced$$

Year 4 annual VT reduced:

$$Year\ 4\ Ridership\ Without\ Project\ Improvements = (Current\ Ridership) * (1 + Average\ \%\ Ridership\ Increase\ per\ Year)^{number\ of\ years\ of\ growth}$$

$$= (250\ Daily\ Riders) * (1 + 2\%\ Average\ Ridership\ Increase\ per\ Year)^{4\ years\ of\ growth} = 271\ Daily\ Riders\ in\ Year\ 4\ Without\ Project\ Improvements$$

$$Year\ 4\ Ridership\ Increase = (Year\ 4\ Ridership\ Without\ Project\ Improvements) * (\%\ Ridership\ Increase\ from\ Project\ Improvements)$$

$$= (271\ Daily\ Riders) * (4\%\ Ridership\ Increase\ from\ Project\ Improvements) = 11\ New\ Daily\ Riders$$

$$= (11\ New\ Daily\ Riders) * \left(260\frac{days}{year}\right) = 2{,}860\ Annual\ Vehicle\ Trips\ Reduced$$

Annual VT reduced:
2,600 in year 1 and 2,860 in year 4

$$Annual\ Vehicle\ Miles\ Traveled\ Reduced = (Annual\ Vehicle\ Trips\ Reduced) * (Average\ Trip\ Length)$$

Year 1 annual VMT reduced:

$$= (2{,}600\ Annual\ Vehicle\ Trips\ Reduced) * \left(12\ \frac{miles}{trip}\right) = 31{,}200\ Annual\ Vehicle\ Miles\ Traveled\ Reduced$$

Year 4 annual VMT reduced:

$$= (2{,}860\ Annual\ Vehicle\ Trips\ Reduced) * \left(12\ \frac{miles}{trip}\right) = 34{,}320\ Annual\ Vehicle\ Miles\ Traveled\ Reduced$$

Annual VMT reduced:
31,200 in year 1 and 34,320 in year 4