**CO-PILOT Frequently Asked Questions, version 4.0**

**Updated March 16, 2015**

1. **Q:** I believe that some component costs are too high for my proposed pilot. What can I do?  
   **A:** Our average cost estimates were derived from the literature such as AASHTO National CV Field Infrastructure Footprint Analysis Final Report (Draft v1, May 2014) and from consultation with Subject Matter Experts. CO-PILOT is very flexible and allows the user to modify these costs in Step 4 if needed.
2. **Q:** Please clarify the various software costs.

**A:** First are the Software Development & Testing costs for each application. Applications were categorized as requiring low, medium, or high development costs, depending on the amount of development thus far on the application, availability of suppliers that can produce and license it, and perceived complexity of remaining development. These three categories correspond to particular average development and testing costs ($100K, $250K, and $400K). Each of these is of course a rough average estimate and the simulation will account for variability in these costs by sampling cost values from a distribution during CO-PILOT execution. These costs can be adjusted in Step 4.

Second is the software licensing cost.  This is a per-vehicle cost that assumes that each vehicle will require its own software license. This cost covers all CV applications in the vehicle, as it is assumed that the software is integrated during the Systems Engineering process. Many of the applications will have no licensing costs, but not necessarily true for those developed using private funding. If you think that the licensing costs for your project will be lower than those in CO-PILOT or that your project won’t require software licenses, those costs can be adjusted or set to zero in Step 4.

Lastly, the maintenance cost for software has been included in the overall maintenance cost item which is calculated as 7% of the total one-time costs.  This cannot be adjusted in the tool but can be changed in the output spreadsheet if you so desire.

1. Q: Are the CO-PILOT component definitions consistent with the CVRIA?

A: We adhered to CVRIA as much as possible when developing the CO-PILOT definitions.

1. Q: Are maintenance / full lifecycle costs included in the cost estimates?

A: Yes, our estimates include an O&M component through Phase 3 of the deployments.

1. **Q:** Why are some quantities in Step 4 equal to zero?

**A:** These are optional items, and users can modify to have a non-zero quantity if desired.Items may be considered “optional” for several reasons. Either the functionality is considered optional for the application, or it is questionable that the pilot deployment would fund a particular component. For example, a Multimodal Traveler’s cellular phone costs would most likely NOT be funded by the pilot deployment, as individuals would use their existing phones and associated data plans, so the quantity is given as zero.

1. Q: Were system security costs (SCMS) included in CO-PILOT cost estimates?

A: Yes, security costs were rolled up into Systems Engineering/Integration cost estimates.

1. Q: How will the addition of new applications and their costs be handled as they are developed in the future?

A: We hope to update CO-PILOT before the start of Wave 2, assuming that the tool proves useful during Wave 1.

1. Q: Does USDOT plan to use this tool to validate proposal costs?

A: We cannot answer procurement-sensitive questions. Joseph Fusari, Contracting Officer, is the relevant person to contact for questions of that nature.

1. Q**:** Could you please explain what you mean by the Multimodal Travelers building block?

A: The Multimodal Travelers are individuals carrying Mobile Devices or Smartphones, who are using connected vehicles application(s) on their Mobile Devices or Smartphones to get information so they can travel more efficiently, safely, in a way that is more environmentally friendly, etc. These Multimodal Travelers may be pedestrians, or traveling in a vehicle. Not all connected vehicles applications include Multimodal Travelers. See the Connected Vehicles Cost Components detail spreadsheet on the CO-PILOT Help page (sheet Apps\_to\_BBs\_to\_Components) to see which applications include Multimodal Travelers.

1. Q: Does the cost of signal controllers for signalized intersections mean additional costs for controllers if a traditional signal controller is already present?

A: We used assumptions from the AASHTO National Connected Vehicles Field Infrastructure Footprint Analysis Final Report  (Draft v1, May 2014) on the requirements for signal controllers. This report assumes that upgrades to two-thirds of existing signal controllers will be required to achieve the benefits of connected vehicles applications. However, the quantities of these signal controllers can be adjusted in Step 4 if you feel that the controllers in your situation will not need to be upgraded to support your planned deployment.

1. Q: How do we can estimate software development and testing cost for any new CV application (i.e., bike mobility)?

A: We have no guidance on development costs of non-USDOT applications.

1. Q: Where can I find more detail about the assumptions behind individual cost elements in CO-PILOT?

A:  Information on CO-PILOT cost components can be found in the CO-PILOT REFERENCE MATERIALS onthe CO-PILOT Help page (at <https://co-pilot.noblis.org/CVP_CET/help.html>), in the “Connected Vehicle Cost Components Detail” Excel file (sheet “Components\_cost”).