Please stand by for realtime captions. [Captioner is on music hold.]

Good afternoon I will be your conference operator today, I would like to welcome everyone to the analysis conference call, all lines have been placed on you to prevent background noise, there will be a question and answer session, if you would like to ask a question please press Star 1 on the telephone keypad. If you would like to withdraw please press the pound key. Nicole Coene You may begin.

My name is Nicole Coene , during the presentation you can send a question to the chat presentation, our team will be answering questions during the presentation, those answer that did not get answer during the presentation, it will be answered after the presentation, if you have a question please press Star 1 to be placed into the telephone queue. Presentation is available for download, today's webinar and recording will be available online in the next few days. You will receive an email once posted. Please send technical questions via the chat pod or email. Your speaker will be Darren Timothy.

Thank you to all of you for joining today, today we will be discussing preparing a benefit cost analysis for INFRA and TIGER Grant. Most of the material is identical for the two programs. We will be discussing them together. For the TIGER program, the team will demonstrate projects and cost when demonstrating the program for INFRA the same requirement of project sponsor shall submit an application prior to their application. This will be used in two ways for assessment of cost-effectiveness and also in the evaluation of the economic vitality selection of the program.

Regarding the cost effectiveness requirement it is slightly different for the large and smaller projects. They must determine the project to be cost effective to be funded. For smaller projects the BCA is considering before making those project determinations, of the BCA, these benefits have cost in order to lead the cost effect

-- Effective.

We will be examining these assumptions and underlining analysis, anything defined, we will be completing sensitivity only in these analysis. We have updated PCA guidance. On the programs -- BCA guidance for this round of funding on the programs. We have a revised format comprised into a single document here. We have these topics, and an additional recommended values we will be touching on during the conversation. You can see the guidance document at the web id est -- The web address shown on slide.

Looking at BCA report, and a transparent reducible analysis, which means BCA should provide enough information to be able to follow the logic and reproduce the results. Ideally we would like to see a spreadsheet file for shorter calculations, trained through those calculations directly, also it is very helpful to have technical documented sources of information to use including subjects and inputs. We will touch on these a few times in the presentation for the benefit cost rather than just a summary output. The important part of having a good benefit cost analysis is to have a good baseline. We are measuring cost and benefits. Taking action against this and comparing it to the action. In which you are applying for funding. It is also referred to as a base case. Consider any protected changes such as [Indiscernible] that would occur in the absence of the project, the ongoing routine maintenance activities. Consider the full impacts of [Indiscernible] .

If you have a project to rehabilitate or replace an aging bridge. Under your baseline, it would be reasonable to assume over time. You can retain routine maintenance the bridge would be turned into a point if it needs to be closed, it could have impact or negative impact to traffic. That would be reasonable to include.

In the case of the baseline don't assume the same project will be implemented later. We are not looking for analysis that simply shows the difference of doing a project now versus later. That doesn't really get to the underlying question of the project itself is cost beneficial. The assumptions of technical assistance. Especially in the case where, and alternative will be divided, traffic flowing over this alternative, it needs to be a reasonable alternative. -- Products being shipped long-distance and inefficient needs. -- Means.

The cost analysis, these recent estimates, I would like to see providing information on supporting forecasts, and the methodology using in predicting these forecasts, we would estimate benefits in the intermediate years. Often times we recognize you may have forecasts that are done in a particular base year. You can [Indiscernible-speaker away from microphone] we would like you to avoid impacts to all the interim years. Be cautious about long-term growth assumptions. We will talk about this in a minute but consider the underlining facets of the facility. The growth rate over long periods of time, it may be a higher levels. It wouldn't occur in improvements, with the pre-baseline. The analysis period. The initial development, and the construction of the project. Generally we tie this to the expected improvement liability. How long will it be to you anticipate this same action? How long would you expect it to be before you consider, when the project is being designed, maybe for a re-construction project when would you do this again? We wouldn't recommend excessively long analysis periods. Nothing over 40 years. This could occur if you have a structure such as a bridge which has service life beyond that. The concern when you get into the extended periods, the forecast and the numbers being used to produce those estimates really they are speculated in those years. In lieu of that, we recommend you use residual value to cover those remaining service lines pass that. For most improvements it will be so much shorter than that. For the importance of inflation and discounting. For these we recommend 2016 base year all your numbers are using to prepare, these need to be stated in the same base year. We provided details for everyone. We are discounting all BCA use the 7% discount rate. If you would like include 3% discount rate for the analysis. This is a change from the past guidance which has been a little bit less clear on this point perhaps. We would like everyone to use the 7% discount rate.

The scope of the analysis is an important consideration. It's important that they match. Otherwise the comparison becomes examples for example, the benefits paying from a larger project, cannot be accounted for the cost for a TIGER fund. This scope will remain all elements required to achieve benefits estimated we've seen certain cases, with related investments, that are necessary in the project. We have some times that you would have a project consisting of a package. Not perhaps related. An independent project. In that case. It is important to a cost analysis for each in attendance each element as well. Summit a project to be the rollup of cost and benefits into benefits that should be presented on an annual basis. They should have a good reason to do so. Negative outcomes should be counted. Something to include before the projects that have existing assets. You take impacts during the construction period in the benefits from the categories it is okay for them to be negative I will discuss some of the common types of benefits. General fund savings. We have guidance to include values for saving travel time. Remember to consider gift occupancy when you're talking about road travel. We would encourage you to use locations specific to the information using those calculations. We do have national values that could be used to value center may need to be converted. Make sure avoid counting double. If you are valuing troubled time -- Travel time -- We recognize there are numbers of methodology for doing this. If you have that we will accept it. Things we would ask you to monetize is that you document the methodology used. It is also important to show parameters using these which are separate and distinct. Sometimes the metrics used may include these of the same time, it is important to show it is general to the savings. Operating cost savings is another area to avoid double counting. If you are looking at these separate and want to include in fact are for cost savings, you want to make sure one is not embedded in the other. The guidance does provide cost for commercial trucks if you do not have that data available. Safety benefits. Associated with producing property damage. Improvements in safety outcomes should be explained and documented especially for all types of documents. And the approved outcomes of the project, they suggest use facilities specific to data history and justify any assumptions about rejections -- Reductions that may result from the project. Rather than someone giving numbers to assume this project will result in a reduction. Try to justify or explain that better. Often times this crash related data may be in scale we will convert them to see the guidance. I will explain on how to do that and provide guidance.

Mission reduction another category benefit. We have recommended values some of the criteria is here. You have to be careful about some of the measurements that are being applied. Using these same values in monetizing those submissions. Currently we do not have recommended values for CO2 emission reduction, the guidance in which we relied on the past, this has been rescinded recently. What we would recommend. You choose to monetize, document your assumptions. It is important to values you use our discounted at the same rate as other benefits which is a change from past guidance. [Indiscernible-speaker away from microphone] in keeping with the current guidelines.

Benefits associated with transportation improvements can occur, both can be for existing users, when we talk about this we mean based on the number of users, under the baseline. Me include -- This may include growth over time. As a result of the improvement, the additional usage that would occur with the project. BCA would value the benefits less than those existing users, the BCA guide would have discussion on it for doing that.

Modal diversion which is an impact or a source of benefits we see and project BCA some thoughts. The projected magnitude matters than it should be based on careful analysis of the market and the potential diversions from other modes that may be attributed to the other projects. It really needs to be motivated by the market once you are operating a specific project.

Benefit estimates should not be based comparing the cost with the old mode, as we sing in the past. These users would be captured, and more additional users that type of comparison. It is not the right way to do that.

At the same time reductions to external costs would be relevant. Emissions costs, or in the case of trucks, pavement damage, these can also come into play. The values from 1997 HCAS study, it is good and discussed those values, for the 20 $16, a caveat you cannot apply the travel, the diversion you are talking about, will apply to the values, you need to think about it carefully. Also netted out highway user fees. For the marginal pavement costs, and that diversion.

Several categories of benefits that are harder to quantify. We discussed these benefits as examples. Such as extreme weather events. The noise reduction, a 10% methodology, can certainly be discussed quantitatively. Often times in this case they can come into play with improvements that you may have. Any emergency vehicles being blocked certain times of day accessing certain areas. These developed by FEMA representing guidance. These are tricky areas. A richer discuss some caveats, things that you avoid double County benefits, or values of other categories. These forecast the increase of the property value increase the qualitative benefit to be honest. It is discussed in the applications. Where possible. We would like to quantify the magnitudes and the impact expectancies. It is difficult to monetize. We can provide on that, which could be helpful. [Indiscernible-speaker away from microphone]

Turning into the qualitative cost side of the equation. To include preconstruction activities such as design or acquisition. The cost should be included regardless of the funding source. Also in many cases, we discussed it is referred to as inflation earlier. Some expressed in the expenditure terms, and the budget in the year analysis, is expressed in the cost developers in 2015 base year. It is what we recommend. Maintenance costs, as a result of the project being positive or negative. When you are building a new facility. You would have ongoing maintenance cost occurring over the life of the project which would not occur if the facility would not have been built. The existing facilities reconstructed. They result in net savings in comparison then the newer reconstructed facilities that can be factored in.

Residual value, from earlier. In the office period, the calculations in which you can make. Taking the fraction, the remaining service line. The approved facility service line, remaining after the analysis period, make sure you discount when doing that. Account for any major activities that occur during the remaining surface life period -- Service life period.

Comparing benefits to cost, two ways we can look at that. The net value, we are taking the estimated benefits and subtracting the cost. Another common way. The benefit cost ratio, what is important. It should only include the capital cost of the project. In other words. We would discuss the residual cost though should actually be included in the numerator of the calculations. [Indiscernible-speaker away from microphone]

Other issues in benefit cost analysis. Economic impact analysis, it is important to understand the distinction between the cost analysis. BCA measures the value of the costs and benefits as a whole. Impact analysis is looking at trying to measure increased activity to a particular project. It represents first-order benefits that you would get an other factors. It is an additional them if it which should be added to the other benefits that are calculated in the analysis. Transfers another issue. There are some impacts to the projects either way it is a cost to one party and a benefit to the other. It would be a wash. For example an increase in revenues to the operator of the facility. While it is a benefit, it is a cost to the user's. It is transferred from one side to the other taxes is another area. Keys to avoid including transfers as benefits probably in describing the project to include sometimes the avoided weighted cost. What we mean by that. Sometimes projects are motivated or described as, if we do not to this project we would undertake another projects it gets characterized as a benefit of doing this project. That is not the right way to think about it when you are doing this, what happens when you do this project. What it costs of making other improvements, which include BCA. You can go to the TIGER websites or send questions to the emails here. If you would like us to answer cost analysis, or any questions. With that we will take questions. We will do our best to answer. If you would like to ask a question over the phone please press Star 1 on the telephone keypad to have your telephone line unmute it.

There is a question from Richard.

Sorry someone is on the line.

Go ahead.

A question from Richard asking about doing a project now for a slightly more complicated project later how do you account for that?

An appropriate way to think about this. Doing the project now versus not doing the project. What happens. If you do not do this project perhaps it involves rehabilitation of a civility -- Facility. You may have maintenance cost over time. You are having to constantly close the facility. For maintenance temporary for these activities, he gets to a point where this facility no longer becomes useful. Or diversion impacts. Again it is a true analysis of this particular thing and what happens. In constructing a baseline with this particular type, applying for funding. #Asks if BCA is included in the application as directed, with the additional BCA results be considered when evaluating the application clicks

-- When in value waiting --

-- When evaluating the application clicks --?

The benefit of those projects being completed, specified in the application. That is not the same answer we are looking for on technical repairs, and not one that simply involves construction of the project.

To we have a question on the phone? Can you please open up the phone line.

The first question comes from Robert McKinney your line is open.

Thank you for the presentation the line say we have a project in funding, we are not likely to get funding for 5 to 10 years, we have a cost to inflation on the capital goods, the first question, the second what is the standards on wage rate on the value of life, all of these different values we have in the toolbox?

We appreciate the question. First of all. The analysis should be based in content dollars. You may have cost of values in US dollars, you may need to normalize those to make it easier. You need to see the effects of the inflation out of those numbers. Once you have done that. Getting back to what we described this would go away. With regard to assuming increases in a value of time, this is not something we recommend in our gardens -- Guidance.

We have real increases over time. We know -- We recommend the factors through sensitivity analysis, on those keypad is. Real changes in the parameter values are over time.

Great thank you.

There are no more audio questions at this time I will turn it back over to the presenters.

Robber asks if we can inflate wage rate over time clicks

Again we recommend that you use everything which needs to be in a constant, you would want to take any project did inflation out of the cost estimate say in one year. Should be estimated in your constant 20 $16.

How do benefit in this Cost Analysis we can build within 24 months. [Indiscernible-speaker away from microphone]?

Again for this type of analysis. The way that we are using cost analysis. This is to evaluate the project as the whole. Versus not doing a project. If you are using a method particular for this, innovation, it is an area of one of the other evaluation factors for the program. For the benefit cost analysis itself it would be reflected. If someone were to show up in timing of benefits and cost, if you are using a method, you would expect to see a discounted cost for the project which is lower and resulting in improving a cost ratio for the project itself. They would be separate factors.

Given the separate discussion of noise reduction is it fair to say we should not use noise reduction in the Cost Analysis?

Yes.

What about other environmental benefits clicks

In general we would encourage you to discuss types of impacts qualitatively. If you have a methodology that you think is applicable and consistent guidance. We would be happy to have you include it. We would want more in the evaluation. Certainly, we are open to new ideas. As I mentioned this methodology, this is something that we became aware of as a result of analysis, and we were able to go back and look at it, they got comfortable in that methodology and recommending dollars. 10 the cost be included?

I guess given the sense that we are looking again evaluating the project as a whole. Not an incremental estimate analysis. We are doing a Cost Analysis on the total project. We would include the previous cost. As well as any future.

Can we use the avoided cost of repairs as benefits, can we do this by multiplying for the likelihood of occurrence, in every year there is a 1% occurrence in experience with this storm.

Be careful when you are doing this. If you apply those probabilities. You are saying you have events assuming that they will occur within the time period, and probably occurring over time would be appropriate to address within the analysis. As well as the negative impacts that would result from a loss of the facility in a weather event. Do benefits tie-in, can we include this in the benefit cost analysis?

If the benefit ties in with the effort in a way that it increases both, can we include that in our cost benefit analysis?

Yes the project may be independent and there may be impacts that result in greater benefits for each one individually. That is something to consider that is motivated and described really what those synergies are and those additional benefits that would impact as a result. Table 4 would suggest and would allow for productivity adjustment. This is for the memo of the economic analysis.

Four 2014 -- For 2014.

We can go back and look I don't have that guidance or where that fits with our current guidance. My initial reaction is something that may not be present or occurring. I wouldn't be able to give you better answer without checking.

If we are providing different modes of transportation to relieve congestion why is the benefit calculation restricted to additional users?

If you're focusing on the portion of suggesting cost. In other users not on [Indiscernible] . We mentioned this if you are looking at external congestion it is important that you have analysis, in an area you are talking about rather than just using broad values or other sources. They asked can we grow time by 1% over productivity increase?

We no longer recommend doing that [Indiscernible-speaker away from microphone].

Mark asks. Can you comment on the appropriate base case when dealing with the rehab expansion of the interstate highway, clearly compromise in the functioning of the facility with frequent major maintenance or causing significant diversion of the facility is not a realistic base case?

We typically do not see the analysis of what you'd have if you don't actually do that and Cost Analysis, that would be -- It would need to describe what would happen, the fact that the agency would typically take that improvement because it is cost beneficial. It explains why and basically demonstrates this cost beneficial and a way of illustrating.

On the benefit slide, 14 and 16, they do not assume the cost and annual benefits. What is generally expected over time?

For the improvement benefits may be increasing over time again they are comparing, do-nothing base case to what happens. For improvement. [Indiscernible-speaker away from microphone] they have some kind of forecast year. We can use that and assume it would happen immediately after.

Those are all the questions we have in the chat, we will pause for a moment to give everyone opportunity. Please press Star 1 on the telephone and do this to have your phone line in muted. We will pause to give everybody a chance.

[Captioners Transitioning]I will give everyone until about 3:00. If we do not get any more questions we will close out. Press Star one on your keypad if you would like to ask a question.

A reminder to everyone the deadline to apply for TIGER all applications are due on Tober 16. -- October. 8 PM Eastern time. And do November second by 8:00 Eastern time.

We will close out if you have no questions. If you think of any questions later, you can send them to [ Indiscernible - low volume ].

Thank you and have a good day.

This concludes today's conference call. You now can disconnect.

[ Event Concluded ]