

SUMMARY AND TRANSITION
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- This is important work.
- In the first presentation we started to get around to issues of O-D, we pointed out that there are the water O-D as well as ultimate origin and final destination
- Dave Weekly identified which source is the best for different types of information (LPMS vs. WCSC.)
- The real problem with this data is that it is all entered manually.
- We zeroed in on some of the common characteristics.
- We had a discussion about marginal movements being priced at the max WTP not the marginal WTP.
- It was identified that in our economic analyses we do not do the existing condition well. This is identifying what going on in waterway right now, the without project or base condition, is a projection of the future, with traffic growing but without any of the alternatives.
- We assume infinite capacity on alternative modes.
- We formulate alternatives in a systems context. To determine benefits we recalculate the transportation costs in the system with a change and compare that to the condition without the change in the system. The savings in transportation costs are the project benefits. The alternative that maximizes net benefits is NED plan.
- Do we use original origin and final destinations? Yes. Do we do this well? No.
- If we use tow cost model then do we still need to go to a finer level of granularity? This is a spatial or geographic consideration of granularity.
- TVA has 12,000 data points that estimate original origin to final destination. This information is from Rebi models and interviews. Need to develop more data to encompass the O-D pairs not already captured in those data points.
- How relevant are TVA's old studies to what is going on in today's system? Many of the same economic forces that motivated movements 10 years ago still motivate the system today. Some of the suspect movements are being reexamined- are looking at how those operators do business now. This effort will be completed in the summer, at which time we will have a better handle on grain movements.
- What TVA has done to develop their database: they took the WCSC data and went to each of the docks and asked, "Where does this cargo come from?" With that information they get the transport costs, trucking costs, and all the different costs. When added together these create the effect of tracking movements "from the farmers field to chickens mouth..."
- The question tomorrow will be: how do we demonstrate that our model is reflecting what actually happens? On the Mississippi the people there are all different places that the commodities can go. We need to know how to demonstrate that our models have captured the market. Ohio River Mainstem study people believe that their modeling method captures what is going on in that system because there are not many alternatives available. We need to identify a method that works in other areas under different conditions.

- The issue of service- we need to know what else effects the WTP of different shippers. What are they willing to endure and why? People pay more for water transportation than they would for rail because of issues of service. Already shippers pay more than they would for rail for reasons of safety considerations. What are things to consider that go into estimating WTP?
- Supply chain costs- sometimes transport drives the train, other times there are other outside factors that drive the decisions.
- Rail freight rate- sometimes the rail freight rate includes a premium for insurance.
- Are these issues significant in the grand scheme of this research effort or just items of interest? Are they necessary to capture the system? These are things to think about for tomorrow.
- Forecasting: When dealing with commodities like grain there are outside issues to consider when developing forecasts, such as how things like government subsidies influence future grain shipments. (If the government stops subsidizing, what will happen to the shipments?)
- Need some growth to justify the projects, but since we cannot accurately project the future how should we make the investment decisions? If the project 5 different scenarios, some alternatives will be justified across all of the scenarios, while others will not. Even when the dominated alternatives are eliminated there is still an issue of how to get to an answer. With multiple scenarios when do we know that a project is justified or when we should not build?
- We must recognize that when we come to the end of the study we may not be able to decrease the uncertainty regarding different scenarios to a reasonable level. In these cases we must lay out the choices and then let someone else make the decisions. The decision makers should assign the future condition they think is most likely. The study teams cannot come up with answers that have 100% certainty. We are looking for robust alternatives that have good results across the different scenarios. We are not planning to make specific recommendations but identify futures and robustness, allowing leadership to make the choices.
- Who is the decision maker we will be sending information to? What information do they want to know in order to make their decisions? Should we give them this information or tell them instead what we think they need to know to make the selection?
- When making a forecast we have to accept that it will be wrong- there is 0 probability that we will get a forecast right. Instead of hoping to perfect the forecast we can instead improve the forecasting methodologies. Can we come up with better or best forecasts?
- Focus on things that COE can do properly because tools, techniques, and training already exist. Should identifying these items be part of the effort? Do we need to define what the priorities are? Should we learn about forecasting techniques that have been developed for other industries or do we just want to focus on improving those designed internally?
- What is academic bounding? What are we trying to do? Forecasts will make all the difference- they are probably the #1 variable in these analyses.

- To develop a forecasting structure we need to understand the WTP and microeconomic basis of the particular system. Maybe the tools and techniques do not really exist outside that can be applied to these circumstances.
- We need an understanding of the internal structure of the microeconomic decision making structure that exists in your system. Forecasts will always be wrong but how close can we be? Work can be done to improve on COE forecasting.
- Red River forecasting made the national news. COE started to dig up old studies to examine how the forecasts looked; many were shown to be within reasonable bounds. TVA did the study with the Huntington District after the Red River episode and found that several of the forecasts they studied were really good. However, problems existed in that the forecasts compared were the aggregate tons forecasted to the actual aggregate tons shipped. The study did not consider the specific commodity forecasts or the forecasts by O-D pair. To determine if the forecasts were good we need to consider how the forecasts were actually used in the analysis.
- Forecasting- techniques have been developed in the industry but are all for very short term forecasts. They deal with how two series parallel each other and how to project that out another year or two. This is a different set of issues with COE projects- here we need to understand the commodity markets in order to make future assumption over the long run. We shouldn't just assume that there are forecasting techniques that apply. Maybe we need to consider more international aspects.
- What percentage of the tonnage actually needs the additional water (for a deep draft analysis)? This affects the formulation in that only some portion of the commodities will need the improvements. The "benefiting fleet" is smaller than the actual fleet calling the study area.
- On the Ohio River System coal is the most important commodity and that is what we need to do the most detailed study of. For other commodities we need to know the price elasticity, along with the price and time elasticity. Do we need an understanding of the time band for this particular commodity? If timing is not critical then can make adjusts and link the two markets.
- Looking at the delta in with vs. without project-- there are different questions to ask if interested in the value of the system as a whole or just the delta from with vs. without. As a result we are talking about relatively small changes that you are trying to evaluate in the system. If we ask the question "should we consider having navigation on the Ohio river system" is completely different than asking "should we extend one lock in the system?" We need to understand the commodity markets in order to know where the resources should be invested.
- How does information availability bias the w/project- some will bias up, others down. Will have to make decisions under constraints- we have limited funds and must make decisions with limited information.
- We need to decide where to put the money- what information is necessary to make the best decision possible?
- Full employment assumption: if barges are made more efficient then we assume they are put to work elsewhere. Maybe this is not a fair assumption.

- This research effort should inform the decision making process, not to replace it. This will be a piece of information provided to decision makers, not the end of the process.
- Peer Review
- Peer review versus ITR- we want to have seal of approval attached to the work done in this research effort. If a survey technique is developed by this group then we want it to go through a process such that at the end of process its strengths and weaknesses are identified by some external group. HQ can then say yes or no to its validity. At the end we want a suite of nationally recognized models.
- ITR is the process that asks the question: “Did you use nationally recognized model & techniques for populating models & did you use it correctly?” This is different than peer review- it is a second step.
- Tomorrow I want you to provide specifics like: who should pay for the review? Who should conduct the review? What are the mechanics for selecting a review team? How do we minimize bias and maximize credibility? Can we make the process flexible so it can be adapted to small budgets?
- Peer review process- provide reviewers with a specific list of question
- The process needs to be integrated to give the reviewers the belief that they can influence the outcome.
- What questions we ask the panel will be important. If we ask them to put a seal of approval on the 50 year forecasts- no one will want to approve that because it is not something anyone wants to endorse
- Think about who is on the review team and how do we select them? Should they be totally ignorant of waterways to prevent bias?
- It may be frustrating for reviewers to look at the study after the fact. It seems there is benefit in some cases to doing a tail-end review because then the study team has an incentive to do the best work possible. If we have after the fact review where studies get slapped in the face for doing a bad job, then that is an incentive to do better analysis. COE doesn't change unless forced to. These reviews will encourage change.
- We have to plow ahead and make decisions to meet deadlines. The professionals who do the analysis are trying to do the best that can and, as much as possible, try to have the best and most informed decision. It is within the organization that we need to maintain integrity. Keep in mind that our objective isn't to serve Congress- Congress is influenced by the wants of the administration. Generals are influenced by politics. The analysis must remain strictly technical.
- Heavy discounting of the out years- need to find ways to deal with the problem of 50-year forecasts. What other things should be considered?
- Decision makers don't ask how things got calculated but ask about the big picture:
 - How does the system actually behave? It is very important to have models that capture the actual movements.
- We have good data but need more of it to reflect the behavior
- We have existing models but we can use the additional data to help inform and improve these existing models.

- Behavior→data→models; we understand how the different pieces relate to each other but how do we go from one step to the next?

Academic Comments:

I worry that maybe the Corps has a grander scheme in mind for result of this research effort. We can come up with specific goals to improve the analysis, but how does that fit into some grander charge from the administration?

As an academic I'm not in business of "finding benefits". I welcome an approach that isn't focused on finding benefits but rather understanding the system.

COE representatives possess a wealth of information and experience in doing projects. You invited the academics to listen. It was a very open discussion, although I found there was no systematic presentation about the methodology. How do you actually calculate the benefits and costs? This information would be more effective so we can pinpoint what is wrong or right with the analysis. Like the whole process of opening discussions to the outside- could benefit both academics and COE people

I am definitely interested in doing work and research in this area. There is much expertise in the room today from both the academics and the COE people. Having the practitioners is an important part of knowing what is going on in the world.