

**Ohio-Kentucky-Indiana
Regional Council of Governments**

**Report of the
Peer Review Panel of
Travel Forecasting Procedures
Meetings of June 16 and 17, 2003**

**Prepared by
SG Associates, Inc.**

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Background

Developing and evaluating alternative transportation investments involves the use of mathematical procedures. These procedures – referred to as travel demand or travel forecasting models – are used to:

- Project the demand for travel, including both the number of trips and the trip origin-destination patterns, based on the location and characteristics of the population of the region, of the employment retail, service and recreational opportunities available and of the nature and quality of the transportation system available in the region
- Estimate the number of trips that will be made using the various ways to travel (travel modes) with the OKI region, including driving alone, riding as a passenger in a private vehicle, or riding in a public transit vehicle
- Determining the routes that will be selected by vehicle drivers or transit passengers
- Evaluating the resulting transportation system conditions including traffic volumes on roadway segments, traffic congestion, highway speeds, public transit patronage, and transportation related emissions that contribute to degradation of air quality.

The OKI Regional Council of Governments first developed a set of travel forecasting models in the late 1960s. Over the years, as new issues have faced the region and as improved forecasting methodologies have been developed, OKI has modified and upgraded the models. At various times OKI has commissioned an assessment of its models, a Peer Review, by professionals from across the nation skilled in travel forecasting. These reviews have been used to assure that the OKI models are consistent with the state-of-the-practice, to obtain an independent evaluation of the validity of the models for application to project development, and to define opportunities for future model enhancement activities.

In 1994, as the region was about to embark on major studies of possible transportation investments in the Eastern Corridor and in the I-71 Corridor OKI convened a Peer Review Panel to assess the then current model set in view of the planning regulations and policies established by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). At meeting held in July 1994 the panel reviewed the OKI models and reported a set recommendations for short-term actions, needed for completion of the studies then underway, and for long-term actions that would enable the models to better respond to specific transportation issues.

In August of 1996 the Panel met again to review the work that had been done and to provide suggestions for use of the models in the then active investment studies. In the period between 1994 and 1996 OKI had conducted a household travel survey, a transit on-board survey, external station trip survey, Greater Cincinnati Northern Kentucky International Airport trip survey and Kings Island Amusement Park trip survey. The data gathered in those surveys were being used to implement some of the recommended model enhancements (e.g., new trip generation rates, revised distribution functions). Other improvements (e.g. a nested logit mode choice model) were being implemented using a combination of survey data and information from other metropolitan areas. Separate sets of nested logit mode choice models were developed for peak and off-peak periods. Furthermore, the model was enhanced to adopt INET form transit network, equilibrium highway assignment procedure, multiple speed-volume

relationship equations, weighted travel time/distance impedance for path finding, highway assignment for trip tables of 4 time periods, assignment of HOV vehicles, and transit assignment of peak/off-peak trip tables and feedback loop to better simulate peak travel speed. The panel commented on the work done and noted suggested actions to continue the process of model improvement.

In the years following 1996 the studies active at that time were completed and new studies were begun. The changing nature of the region and of travel between the OKI region and the Dayton area suggested that the two areas could no longer be studied in isolation. Among the major issues of interest to OKI was a study of the I-75 corridor. A thorough analysis of travel in the corridor, including evaluation of wide range of modal alternatives for serving the I-75 Corridor travel demand required a unified study embracing both the OKI region and the area of the Miami Valley Regional Planning Commission (MVRPC). The existing model set was expanded to cover the combined region and modified as needed to make the best use of the data available in the two regions and to replicate the observed travel patterns. At the same time, some of the model enhancements recommended in 1994 or 1996 were undertaken.

OKI is now ready to use the revised travel forecasting model set for further planning activities. In the current model set:

- The area of analysis includes both the OKI and MVRPC regions
- The trip distribution and mode choice functions have been revised to reflect the functional forms and sensitivities now common in model sets in major metropolitan areas
- A new procedure for analysis of truck travel has been implemented
- Year 2000 Census data have provided more current information on area demographics and work travel

To again provide an independent assessment and review, OKI convened in June 2003 another Peer Review panel with the charge to comment on:

- The ability of the models to address the planning issues of importance to the region
- The reliability and defensibility of the forecasts produced by the models
- The consistency of the model set with the current state-of the-practice, and
- If appropriate, to provide suggestions and comments for further enhancement of OKI's procedures.

The Panel

The panel assembled to review the models and provide advice to OKI consisted of eight members with experience in both the requirements of federal programs affecting transportation investment planning and of the application of travel forecasting procedures for metropolitan regions. Two of the panel members, including the chair, were from the private sector; two were from other Metropolitan Planning Organizations, one was from an academic position, one was from the Ohio Department of Transportation, one was from the Federal Highway Administration and one was from the Federal Transit Administration.

The panelists were:

- Mr. Frank Spielberg, SG associates, Inc.
- Mr. Keith Killough - KLK Consulting
- Mr. Keith Lawton – Metro, Portland Oregon
- Mr. Jeffery May – Denver Regional Council of Governments
- Dr. Eric Miller – University of Toronto
- Mr. Anson Wu – Ohio Department of Transportation
- Mr. Frank Burkett – Federal Highway Administration
- Mr. Eric Pihl – Federal Transit Administration

Brief statements of qualifications of the panelists are presented in Appendix A.

Meeting Activities

The 2003 meetings were held in the OKI offices on June 16 and 17, 2003. The agenda for the meetings is presented in Appendix B.

Monday, June 16

The meetings convened on Monday, June 16 at 8:30 AM. The first item of business was the introduction of all participants including the members of the panel, staff of OKI, representatives of the Ohio Department of Transportation, the Kentucky Transportation Cabinet, the Indiana Transportation Department, the Miami Valley Regional Planning Council, the City of Cincinnati, the Transit Authority of Northern Kentucky, University of Cincinnati, and the Federal Highway Administration.

After a welcome by OKI Executive Director James Duane, Mr. Spielberg discussed the purpose of the panel's meetings, the expectations for what was to be accomplished and the procedures for the meetings. He explained that as a guideline the members of the Panel would be permitted to ask questions during presentations and would be given the first opportunity for

questions at the end of each presentation. Other members of the audience were asked to refrain from questions during presentations and would be permitted to ask questions, if time permitted, at the end of the presentations.

Monday morning was devoted primarily to summary presentation of the established OKI procedures for the basic components of the model set. Prior to the meetings OKI had assembled a CD containing descriptions and documentation of the key procedures used in the travel forecasting models. Table 1 displays the contents of this CD. A copy of the CD was sent to each of the panel members and other participants so that they might become familiar with the general methods prior to the meetings. As a result in the morning OKI staff did not need to describe each aspect of the model components in great detail. The presentations were primarily an overview. Features or methods that differed from standard practice were also referenced.

The first technical presentation was made by Mr. Tsai of OKI. He discussed some of the uses by OKI of the travel forecasting models. The uses include long range transportation plan update, air quality conformity analysis, emission budget estimation, corridor/sub-area transportation analysis, and development of "certified" traffic volume for roadway design projects. In response to questions he noted that analysis of the use of possible HOV lanes and public transit would be elements of any corridor studies. Toll roads and other pricing schemes were not likely to be an issue for planning in the OKI region. OKI wants to be sure that its modeling procedures are valid and that they are consistent with the state of the practice as applied by other Metropolitan Planning Organizations.

Mr. Don Burrell and Ms. Mary Lubbers of the OKI staff reviewed the procedures used by OKI to develop forecasts of regional and subregional growth. Among the key points noted by members of the Panel were the lack of a household auto ownership model that reflected household composition and the lack of forecasts of income.

The next element was a presentation by Mr. Tsai of the methods used to represent the transportation facilities in the region. He discussed various aspects of representation of the transit and highway networks, the procedures for defining roadway capacities and free-flow speeds on roadway segments, the functions used to adjust speeds to reflect the ratio of assigned volume to roadway capacity (speed-volume relationship functions), and the count data used for validation of assignments. He noted that the highway path finding algorithm uses a weighted linear combination of time and distance, not just travel time. This procedure, together with the multiple speed-volume relationship functions, was developed to reduce the tendency of the models to assign to freeways more traffic than is actually observed. The panel raised questions about the "per lane" capacities used for freeway segments and discussed the pros and cons of converting truck volumes to passenger car equivalents for assignment purposes.

The remainder of the morning was devoted to presentation by Mr. Tsai of the evolution of the model development, and an overview of the travel models, the assignment model and emission calculation.

Table 1: Contents of CD Distributed to Members of Peer Review Panel

Data Files Contained on Model Description CD	
0	OKI Travel Demand Model 6 Description
1	Introduction
2.0	Zones and Networks
2.1	Appendix A – Zone System Equivalence Tables
2.2	Appendix B – Consolidated System External Stations
2.3	Appendix F - Classified Speed Capacity Table
2.4	Appendix G – Freeway Expressway Capacity Calculation
2.5	Appendix H – Roadway Facility Class Description
2.6	Appendix I – Roadway Capacity Calculation
2.7	Appendix J – Determination of Free Flow Speeds
2.8	Appendix K – Transit Speed Curves
3	Trip Generation
3.1	Appendix C – Trip Generation Equations
4	Trip Distribution
5	Mode Choice
5.1	Appendix A – HBW Mode Choice Estimation Results
5.2	Appendix B – HBO Mode Choice Estimation Results
5.3	Appendix C -- NHB Mode Choice Estimation Results
6	Trip Assignment
6.1	Appendix D – Time-of-Day Factors
6.2	Appendix E – Speed-Flow Relationship Equations
7	Truck Mode
8	CVG – Kings Island Model
9	Surveys and Databases
10	Emission calculation

Monday afternoon began with a presentation by Mr. Bill Davidson of pbConsult of the modifications made and new elements added in the past two years to develop Version 6.0 of the travel models. This work involved several major elements. A major change was the consolidation of the OKI and MVRPC areas into a single area for travel modeling purposes. This required revision not only to the networks but to almost every aspect of the procedures for forecasting internal travel. In addition the elimination of the boundary between the two areas required reallocation of internal-external, external –internal and through trips. The equations for internal- external trip ends at the internal zones were recalibrated for the combined OKI/MVRPC area. Trip production and attraction adjustment factors were introduced to match observed VMT better.

A new nested logit mode choice model was developed and calibrated for the combined OKI/MVRPC area. In this new model the choice of transit mode (local bus, express bus, light rail and commuter rail) occurred before the choice access mode (walk, park & ride and kiss & ride). Separate sets of models were developed for peak and off-peak periods.

A new trip distribution model was developed for the combined OKI/MVPRC area. The basic gravity model function was retained but the impedance measure was not just highway time but rather a linear transformation of the LogSum term from the new nested logit mode choice model developed by pbConsult. Separate sets of trip distribution models were developed for peak and off-peak periods. Mr. Davidson presented the model structures, discussed the various changes, presented some model estimation results and answered numerous questions.

The second half of Monday afternoon was a presentation by Mr. John Gliebe of the new Truck Model developed by pbConsult. The model is a set of procedures that uses the method proposed in Quick Response Freight Manual (USDOT, 1996) and observed traffic counts to construct a base year table for two classes of trucks, light and heavy. This table was then used to develop a model of truck travel patterns that can be used to forecast future activity.

Tuesday June 17

On Tuesday morning Mr. Gliebe discussed the use of the new truck models for forecasting and the results of one set of forecasts. The method includes the use of a Fratar technique to expand from the estimated base year trip table to a future year trip table. One element of the future projections is the application of a “productivity factor” that estimates the change over time in the daily rate of truck trips per employee. When this factor is applied the models suggest a growth of truck travel by 71% to 77% over a 20 year period. There was extensive discussion about the appropriateness of the application of the productivity factor and the magnitude of the growth in truck travel estimated when this factor is used.

Mr. Tsai then presented the equations used in trip generation for which there had been insufficient time on Monday. Disaggregate household cross-classification models are used to forecast person trip productions for trip purposes: HBW (home based work), HBU (home based university), HBO (home base other) and HBSC (home based school). The independent variables used in these models include worker per household, person per household, automobile per household and area type in which the household locates. The trip rate technique and regression equations are used to estimate the person trip attraction equations for HBW, HBU, HBO, and HBSC trips and EI (external – internal) trip ends. For non-home-based (NHB) trips, which occur after home-based trips are made, NHB trip rates (proportional to the

number of home-based trip attractions in the zone) are used to forecast the NHB person trip origins and destinations.

This was followed by a general discussion of the models and questions by the panel and others. When this was completed the Panel convened in executive session.

Panel Report

The Panel notes that there has been significant progress on OKI's travel forecasting procedures since the previous reviews in 1994 and 1996. The Panel notes that the model set does meet ODOT's standards for traffic assignments and suggests that further enhancement is both possible and desirable.

The Panel strongly supports the melding of the OKI and MVRPC area models in order to better represent travel over the entire region. Additional data collection, including household travel surveys and an on-board survey of transit riders, would be appropriate to establish the base for fitting the models in this regional setting. This is especially the case for the MVRPC, for which little recent travel data appear to be available. Having these data would permit addressing some of the concerns that the Panel has about specific aspects of the Version 6.0 model set.

Some of these concerns relate to the forecasts of basic socio-economic data on which all other forecasts are based. Currently key information related to population growth, employment and land use is developed by other agencies and are not necessarily coordinated. OKI should have a regional forecasting capability independent of the forecasts prepared by the individual states. One part of this independent capability would be the use of more detailed stratifications when preparing employment forecasts.

The panel also expressed concerns about the apparent overestimation of trip lengths in the trip distribution model and the actions taken to accommodate this overestimation. Further analysis is suggested of:

- The consistency of highway and transit path building parameters vis-à-vis the utility functions in the mode choice and distribution models
- The factors used in the trip generation functions
- The use of significant k-factors

The Panel noted that further market stratification might be required to overcome these problems.

There was also concern about the large differences between the constants associated with submodes in the mode choice utility functions. Further, transit system specific factors should be eliminated from these functions.

Other recommended short term improvements include:

- The use of passenger car equivalents for trucks in the assignment process. This would involve revision of the roadway capacities
- Allowing the area type designations used in various portions of the model to vary over time so the area types in future years are not necessarily the same as in the base year.

The productivity factors used in the truck model may serve to overstate the growth in truck trips. If these factors are to be used then there needs to be a careful analysis of the ways that growth in worker productivity have been reflected in traffic zone level employment forecasts.

Future enhancements recommended by the Panel are:

- Tour based models
- Incorporating land use factors into the forecasting process
- Generating person trips by all modes (including non-motorized modes)
- Incorporating a density measure in the modal utility functions
- Use of a destination choice model rather than a gravity model; this would include a market stratified trip distribution and emphasis on explainable constants
- Use of significantly more graphics in the analysis and presentation of model development and forecasts
- Development of an auto ownership model
- Income base market stratification in distribution and mode choice
- More detailed demographic and employment data
- Consideration of household life-cycle based generation models

Appendix A

TRAVEL MODEL PEER PANEL

FRANK SPIELBERG, P.E. – Chair

Mr. Frank Spielberg will serve as chair of the Peer Review panel. Mr. Spielberg has over thirty-five years of experience in applied travel forecasting. He conducted a peer review of the OKI model eight years ago. He is familiar with OKI travel demand model and will be able to conduct the review in the most efficient, cost effective and timely manner. Mr. Spielberg is the author of FHWA TMIP (Travel Model Improvement Program) papers "Peer Review Functions and Organization" and " Summary of Comments Prepared by Travel Forecasting Peer Review Panels". He is knowledgeable about issues and problems in organizing and conducting peer review and has a good network in the travel demand modeling professionals. For the last OKI model resulted in solid recommendations which greatly improved the model when implemented.

FRANK BURKETT

Mr. Burkett is the statewide Planner for the Ohio Division of FHWA , a position he has held since 2000. His responsibilities include oversight of the planning processes for seven MPOs, the ODOT Annual Work Program, and the update of the statewide transportation plan. In 2001 he was designated the first Division Air Quality Coordinator in the Agency with responsibility for assisting the MPOs and ODOT with impending changes in regulations, technology and attainment status. Prior to joining FHWA, he was the Environmental Coordinator for the Transportation Division of Burgess & Niple, Limited for seven years. During that time he became somewhat familiar with OKI's regional travel demand forecasting model as the environmental lead for the I-71 Corridor MIS.

KEITH KILLOUGH

Mr. Killough, from 1995 to 2002 a review Panel Member for the USDOT Travel Model Improvement Program, is currently the sole proprietor of a firm specializing in transportation analysis and modeling. His present work is related to the Travel Model Improvement project for the Southern California Association of Governments and a Travel Forecasting Technology Assessment for the California Department of Transportation. Previous positions have included Deputy Executive Officer for Countywide Planning and Development for the Los Angeles County Metropolitan Transportation Authority; Planning Manager for the Southern California Rapid Transit District; Coordinator of Long-Range Transportation Planning for SEMCOG (Detroit) and service with Barton-Aschman Associates.

T. KEITH LAWTON

Currently Director of Technical services, Metro Planning Department, Portland, OR. He has been active in model development for over 30 years. He is currently involved with the application of TRANSIMS in Portland. Recently, has led the development of a tour-based activity model set, and been a leader in developing an integrated land-use and transportation model, which has seen project application in Portland. He has also led the move to include the effects of urban design on transport demand, and to embed these model elements in the Portland trip-based models. He has a BSc. in Civil Engineering from the University of Natal (South Africa), and an M.S. in Civil and Environmental Engineering from Duke University. He is a member and past Chair of the TRB Committee on Passenger Travel Demand Forecasting.

JEFFREY MAY

Jeffrey May is Director of the Denver Regional Council of Governments Resource Center which provides information, tools and services to policy makers in support of public and private decision-making affecting the quality of life in the Denver region. The Resource Center is organized around three disciplines: Geographic information Systems, socio-economic data and forecast, and transportation and air quality data and forecasts. Mr. May has over 30 years of experience including work for private consulting firms, the state of Minnesota and the United Nations. He has extensive experience in calibration, validation and exercising of regional travel models. He also has significant experience in the preparation of transportation plans and programs. More recently he has been involved in the use of GIS and socio-economic data to develop community and company specific data

ERIC MILLER

Eric Miller served on the previous peer review panel for the OKI models. Dr. Miller has bachelor's and master's degrees from the University of Toronto and a Ph.D. from M.I.T. He has been a faculty member in the Department of Civil Engineering, University of Toronto since 1983, where he is currently Bahen-Tanenbaum Professor and Director of the University of Toronto Joint Program in Transportation. He served as Acting Chair of the Department of Civil Engineering during the academic year 1998-99. He is co-chair of the U.S. Transportation Research Board's (TRB) Sub-Committee on Integrated Transportation – Land Use Modeling and a member of the TRB Passenger Travel Demand Forecasting Committee. He is the chair of travel demand modeling peer review panels for magnetic levitation demonstration projects in Pittsburgh and Baltimore, as well as member of technical advisory groups for the *Transims* implementation in Portland, Oregon and the *UrbanSim* implementation in Salt Lake City. His research interests include: integrated land use-transportation modeling; analysis of the relationship between urban form and travel behavior; modeling transportation system energy use and emissions; and microsimulation modeling. He is the developer of *GTAModel*, a “best practice” regional travel demand modeling system used by the City of Toronto, the Ontario Ministry of Transportation and several other groups to do travel demand modeling in the Greater Toronto Area. He is co-author of the textbook *Urban Transportation Planning: A Decision-Oriented Approach*, the second edition of which was published in 2001.

ERIC PIHL

Mr. Pihl is a transportation planner with FTA's Office of Planning, where he manages the review of travel forecasts and analytical methods in support of federal New Starts planning requirements. Prior to joining FTA, Mr. Pihl participated in a variety of assignments related to the development and application of travel forecasting models to evaluate alternative regional transportation and land development scenarios. Mr. Pihl began his career with the Atlanta Regional Commission where he assisted consultants in the application and enhancement of the regional model. He holds a Masters in Transportation Engineering and a Master of City Planning from Georgia Tech.

ANSEN WU

Mr. Wu holds two masters degrees, a master's degree in Transportation engineering and one in City and Regional Planning. He has over twenty three years of modeling experience with the Ohio DOT and two years Southeastern Regional Planning and Economic Development District. While at ODOT he has provided model technical support, model development, model documentation, research, air quality conformity, impact studies, other studies, and has performed as a lead worker in the office. Ansen has worked with the OKI model and model staff and is very familiar with the OKI model.

Appendix B

Agenda OKI Model Review Peer Panel Meetings June 16 and 17, 2003

Monday June 16

- 8:30 AM Convene at OKI
- 8:45 AM Welcome and Introductions – James Q Duane, OKI Executive Director
- 9:00 AM Purpose of the Meetings and Charge to the Panel – Spielberg
- 9:15 AM Intended uses for the model and issues – OKI
- 9:30 AM Land Use & Demographic Forecasting Process – OKI
- 10:00 AM Transportation Supply & Network Development – OKI
Network Summaries
Speed/Capacity Table
Capacity Calculation
Free-flow Calculation
Transit Speed Equations
- 10:30 AM BREAK
- 10:45 AM Model Overview - OKI
Model Development history
Model overview
Trip Generation Model
[Household Classification](#)
[Trip Production Equations/Rates](#)
[Trip Attraction Equations](#)
Assignment Model
[Time of Day Trip Tables](#)
[Time of Day Factors](#)
[Speed – Flow Relationship Equations](#)
Airport _ Kings Island Model (will be presented next morning, if time does not allow)
Emission Calculation (will be presented next morning, if time does not allow)
- 12:15 PM LUNCH
- 1:15 PM Summary of Model Review & Recommendations – PB

Consolidated OKI and MVRPC models
Other things that fit under this heading

- 2:15 PM Model Structure & Description (Part 1) – PB
Consolidated Trip Generation Model (Overview)
Revised Trip Distribution Models
External Stations (I-X and X-I trips)
- 3:15 PM BREAK
- 3:30 PM Version 6.0 Model Structure & Description (Part 2) - PB
Data used for modal choice model estimation
Mode Choice Model Development
Multi-class assignment
Feedback
Methods for projecting use of HOV Lanes and Light Rail
- 4:30 PM Truck Model Development – PB
- 5:00 PM ADJOURN

Tuesday June 17

- 8:30 AM Model validation Results – PB
- 9:30 AM Future Year Truck Volume Estimate Methodology – PB
- 10:15 AM BREAK
- 10:30 AM General Discussion / Further Questions and Answers
- 12:15 PM LUNCH (panel may convene work session)
- 1:30 PM Panel work session
- 3:00 PM Panel Report and Discussion
- 4:00 PM ADJOURN

Ending time subject to change based on panel member travel schedules.

Appendix C - Travel Demand Model Peer Review Meeting Attendance

				Attended	
Name	Organization	E-mail	Telephone	6/16/03	6/17/03
Frank Spielberg	SG Associates, Inc.	sgfranks@aol.com	703-750-3363	X	X
Keith L. Killough	KLK Consulting	killough@attbi.com	213-384-0124	X	X
T. Keith Lawton	Metro, Portland, OR	lawtonk@starband.net	503-797-1764	X	X
Jeff May	Denver Regional Council of Governments	jmay@drcog.org	303-480-6746	X	X
Eric J. Miller	University of Toronto	miller@civ.utoronto.ca	416-978-4076	X	X
Eric Pihl	Federal Transit Administration	eric.pihl@fta.dot.gov	202-366-6048	X	X
Frank Burkett	Federal Highway Administration	frank.burkett@fhwa.dot.gov	614-280-6838	X	X
Ansen Wu	Ohio Department of Transportation	awu@dot.state.oh.us	614-752-5736	X	X
William A. Davidson	pbConsult, Inc.	davidson@pbworld.com	415-243-4601	X	X
John Gliebe	pbConsult, Inc.	jgliebe@pbtfc.com	505-881-5357	X	X
Anne Reyner	Wilbur Smith Associates	areyner@wilbursmith.com	803-251-2037	X	X
Ana Ramirez	Miami Valley Regional Planning Council	ai.Ramirez@sbcglobal.net	937-223-6323	X	X
Martin Kim	Miami Valley Regional Planning Council	mkim@mvrpc.org	937-223-6323	X	X
Steve Smith	Indiana Department of Transportation	ssmith@indot.state.in.us	317-232-5636	X	
Roy Nunnally	Indiana Department of Transportation			X	
Rob Bostrom	Kentucky Transportation Cabinet	rob.bostrom@mail.state.ky.us	502-564-7686	X	
Barry House	Kentucky Transportation Cabinet	barry.house@mail.state.ky.us	502-564-7686		
Kong Ee	Kentucky Transportation Cabinet	kong.ee@mail.state.ky.us	502-564-7686	X	X
Winter Troxel	Transit Authority of Northern Kentucky	wtroxel@tankbus.org	859-578-6952	X	
Reggie Victor	City of Cincinnati	reggie.victor@rcc.org	513-352-6266	X	X
Ted Hubbard	Hamilton County Engineer Office	Ted.hubbard@hamilton-co.org	513-946-8903		
Haynes Carson Goddard	University of Cincinnati	haynes.Goddard@uc.edu	513-556-2621	X	X
Cheng-I Tsai	OKI staff	ctsai@oki.org	513-621-6300	X	X
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Jing Cheng	OKI staff	jcheng@oki.org	513-621-6300	X	X
Andy Reser	OKI staff	areser@oki.org	513-621-6300	X	X
Mary Luebbers	OKI staff	mluebbers@oki.org	513-621-6300	X	X
Don Burrell	OKI staff	dburrell@oki.org	513-621-6300	X	
Janet Kelly	OKI staff	jkeller@oki.org	513-621-6300	X	
David Moore	ODOT PNG	Dave.Moore1@dot.state.oh.us	614-466-0754	X	
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