

Summary of the Federal Highway Administration's (FHWA) and Federal Transit Administration's (FTA) Scenario Planning Webinar – New Tools for Scenario Planning

*April 5, 2012
1:30 - 3:00 PM (EDT)*

These notes provide a summary of the webinar's presentations and discussions. Copies of the speakers' presentations are available from the contacts listed below. A complete audio recording of the webinar is available at <https://connectdot.connectsolutions.com/p3buj10bbcp/>.

Presenters

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Charlie Goodman	FTA	(202) 366-1944 Charles.Goodman@dot.gov
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Erik Sabina	DRCOG	(303) 480-6789 ESabina@drcoq.org

Peer Panel

Name	Organization	Contact Information
Reid Ewing	University of Utah	(971) 244-4169 Ewing@arch.utah.edu
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Participants

Approximately 200 participants attended the webinar.

Introduction to Webinar and the FHWA-FTA Scenario Planning Program

Charlie Goodman, Director of Systems Planning at FTA, began the webinar by welcoming participants and outlining the webinar's purpose. The aim of the webinar was to share information on DRCOG's previous scenario planning work with a national audience, including the agency's use of innovative visualization and public engagement techniques. The webinar also explored how DRCOG intends to use several new scenario and land use analysis tools as part of a scenario planning approach to update its regional plan, Metro Vision 2040. Finally, the

webinar provided a forum for DRCOG to engage in dialogue with a panel of five nationally recognized experts on scenario planning. Following DRCOG's presentation, the experts posed a series of questions to DRCOG staff that helped the agency refine its analysis tools and tailor its scenario planning approach.

Jim Thorne, Metropolitan Transportation Specialist at the FHWA Resource Center, then provided an overview of the FHWA-FTA scenario planning program. The program is part of the FHWA-FTA Transportation Planning Capacity Building (TPCB) Program, which provides training and technical assistance for transportation professionals on a wide range of topics.¹ Similarly, through the scenario planning program, FHWA and FTA provide training opportunities and disseminate information and resources to interested agencies. These resources include a website² and a guidebook³ outlining a suggested, six-step scenario planning approach. As part of the program, FHWA and FTA also sponsor a biannual webinar series on varied scenario planning topics of interest.

The New Tools webinar is the fourth in this series. As a follow-up to the New Tools webinar, DRCOG will convene staff and the expert panel for a second webinar in May 2012, followed by a two-day workshop in June sponsored by FHWA and FTA. All three events will help DRCOG prepare for using a scenario planning approach and its suite of new analysis tools to update Metro Vision 2040.

DRCOG and Scenario Planning

Background

Jill Locantore provided an overview of the Denver region and DRCOG's scenario planning efforts to date. DRCOG consists of 56 local governments and serves nearly 3,000,000 people within an approximately 5,000 square mile area.⁴ The region spans a diverse geography ranging from urban settings to small mountain communities, agricultural lands, and other environments.

DRCOG has been developing regional plans since the 1950s. The immediate predecessor to the current Metro Vision Plan was a Regional Development Framework adopted in 1985. The Framework included a map of the future urbanized area based on the compilation of local comprehensive plans. However, these local plans often overlapped or contradicted each other and the Framework did not adequately address issues of concern such as air quality, increasing congestion, and rising transportation expenditures.

To resolve discrepancies and develop a more consistent guiding vision for regional growth, in the 1990s DRCOG developed Metro Vision using a scenario planning approach. The approach involved evaluating four potential growth scenarios against a wide range of criteria that included land use measures (e.g., proximity to transit, employment, services, and retail locations), transportation measures (e.g., vehicle miles traveled and use of alternative modes), and environmental measures (e.g. air and water quality and preservation of open space). DRCOG also evaluated the overall ease of implementation for each scenario (e.g., infrastructure costs, zoning, and legislative changes required).

¹ The TPCB program website is available at www.planning.dot.gov/.

² The website is available at www.fhwa.dot.gov/planning/scenario_and_visualization/scenario_planning/index.cfm.

³ The guidebook is available at www.fhwa.dot.gov/planning/scenario_and_visualization/scenario_planning/scenario_planning_guidebook.

⁴ DRCOG's website is available at www.drcog.org.

The evaluation showed that no single scenario outperformed all others, although the alternatives that concentrated development tended to rank higher than those that resulted in dispersed development. DRCOG ultimately selected a combination of multiple scenarios to provide a framework for growth, targeting those components of scenarios that resulted in an increase in density and a preference for transit investment, and adopted Metro Vision 2020 Plan in 1997.

Metro Vision Update

In 2007, DRCOG undertook another scenario planning effort to update Metro Vision. Six scenarios were developed and evaluated against a variety of criteria. In addition to using quantitative measures to assess scenario performance, DRCOG also used a spider diagram to more easily visualize scenario performance.

In 2009, DRCOG sought to raise citizens' level of awareness about Metro Vision and increase public engagement in addressing regional challenges. To this end, DRCOG worked with MetroQuest to develop a customized version of this scenario planning software tool for the Denver region. MetroQuest allows workshop participants and online users to quickly and easily create a wide range of scenarios and assess outcomes. The software provides an ability to make real-time adjustments to scenarios, showing users the impacts of decisions in “real time.”

Metro Vision 2040

Metro Vision 2040 represents the next major update to Metro Vision. As the 20-year anniversary of the original Metro Vision plan approaches, DRCOG is preparing to revisit many challenges faced in previous efforts, including congestion, air quality, expansion of the urbanized area, and transportation funding shortfalls. DRCOG is also expecting to address new and emerging challenges, including:

- Aging population in the Denver region;
- Changing housing preferences of millennials;
- Increases in cost-of-living (housing, and transportation costs);
- Concerns about the built environment and public health repercussions; and
- Environmental concerns about fossil fuel availability, greenhouse gas emissions, and considerations of urban agriculture.

To address these and other concerns, DRCOG has developed several new analysis tools and will leverage new data sources to conduct a more nuanced analysis of regional challenges. These tools will be used as part of DRCOG’s next scenario planning effort to update Metro Vision.

DRCOG’s New Analysis Tools

Erik Sabina discussed the three new scenario and land use analysis tools that DRCOG has developed or is in the process of developing and aims to use as part of its next Metro Vision scenario planning process. These tools are: 1) Focus, a travel demand model; 2) UrbanSim, a land use model; and 3) DynusT, a supply-side network model. Brief overviews of each tool are outlined below.

Focus

Focus is an activity-based travel demand modeling tool that synthesizes information for individual households and persons to forecast travel on a typical weekday. The model takes into account location-based data, demographic and statistical information, and travel patterns to create trips in “tours.” Each tour is made up of several trips (e.g., home to work, work to recreation, recreation to home) and the model accounts for different trips made by the same person (such as driving to work and then walking to the store). As compared to DRCOG’s previous travel demand models, Focus incorporates more specific geographic data, mapping trips to a specific household rather than to a broader Traffic Analysis Zone (TAZ). Because of this specificity, Focus is able to account for new kinds of trips, such as pedestrian/bicycle trips, that the older models did not. Furthermore, the Focus model accounts for differences in personal preferences, time of day shifts, and other detailed characteristics that together lead to more robust analysis. DRCOG is currently using the Focus model to assess how broader trends, like aging or gentrification, affect transportation demand and behavior.

UrbanSim

UrbanSim, currently under development at DRCOG, will be a significant improvement over DRCOG’s previous land use model. The previous model relied on TAZ-level specificity, while UrbanSim incorporates more detailed geographic data related to residential characteristics and land use patterns at the neighborhood and block levels. UrbanSim also includes important characteristics that incorporate price signals and location-based controls. Previous models would project out to the forecast year and interpolate backward to intermediate years, whereas the UrbanSim model will allow DRCOG to more accurately predict the timing, rate, and location of development trends. UrbanSim produces highly detailed regional development forecasts for elements such as real estate prices, construction proposals, growth rates over time, and household relocations. UrbanSim also makes use of Travel Model Improvement Program data to predict transportation outcomes of land use patterns.

DynusT

DRCOG is developing **DynusT** in collaboration with the University of Arizona. Previous network models used highly simplified behavioral characteristics that limited the model’s accuracy and usefulness. DynusT incorporates key data sensitivities and uses a suite of dynamic traffic assignment tools to more accurately represent network models. DRCOG will use DynusT to integrate system dynamics with land use locations and to model interactions between crucial elements of the roadway network. To support the DynusT network model, DRCOG partnered with three other Colorado metropolitan planning organizations to collect household travel diary data from approximately 12,000 households.

Peer Panel Responses

Following Mr. Sabina’s presentation, the five peers posed a series of questions to DRCOG to assist staff with considering potential improvements or refinements to the analysis tools or to the scenario planning process. Key questions and insights from the peers are outlined below.

Trends and Patterns

- Are there “megatrends” that will drive competing land use forces in the region? Which can DRCOG control or mitigate? Which will have the most impact?
- Is 2040 a sufficient horizon to accurately represent significant changes in land use and transportation patterns? For example, Portland, Oregon, produced a 50-year plan. Thirty years’ worth of development might not be sufficient to see significant differences in land use and transportation.
- How will the development of light rail systems in the region influence DRCOG’s future planning and modeling efforts?

Analysis Tools and Scenario Alternatives

- DRCOG appears to have a wealth of tools and data at its disposal; which of these will be most relevant to the Metro Vision plan update?
- Will DRCOG include street network variables, like intersection density or percentage of four-way intersections, in evaluating scenario alternatives?
- In addition to evaluating scenarios for density, will DRCOG evaluate qualitative measures of land use diversity and design-oriented development? How will DRCOG’s models demonstrate the benefit of mixed land use types?
- When evaluating scenario alternatives, how will DRCOG address induced traffic and development?
- How will DRCOG address fluctuations in gasoline prices in its scenarios?
- Will DRCOG undertake sensitivity analyses to determine how land use changes identified in the scenarios correlate with particular land use or transportation innovations? How will staff translate outcomes to long-term implementation strategies? Will policy options be included in the scenario alternatives themselves?
- Will DRCOG’s new analysis tools help evaluate the local fiscal impacts of scenario alternatives? Given that UrbanSim uses a market-based approach, how will DRCOG establish realistic, yet feasible scenarios?

Scenario Planning Process

- How will DRCOG test scenario alternatives with a public audience?
- How will DRCOG plan for and mitigate potentially negative public reactions to the scenario planning process?
- How is DRCOG engaging the public and member jurisdictions to ensure that they are on board with the scenario discussion and would actively support scenario implementation?
 - It is important to ensure that participants in the process are on board from the start of the scenario planning process. DRCOG should be explicit about the goals of the process, how decisions will be made, and how participants will be kept informed.
- How will DRCOG shape policies that implement the preferred growth scenario?
- Is it technically feasible for future growth to follow some of the patterns indicated as preferable? What would need to happen to make them more realistic?
- How are regional-level concerns translatable to the corridor and neighborhood levels?
- Scenario plans tend to emphasize mode shifts from automobiles to transit, while not recognizing the importance of shifts to walking/bicycling. These shifts are often more important than transit use and should be kept in mind.

- Scenario planning should do more than identify a preferred scenario and a path to implement that scenario. Rather, it should develop mechanisms to respond to changes and forces beyond the control of any one agency.

Participant Polling

Question 1: What is your organization?

	Number Responding	Percent Responding
Federal Government	24	24%
State Government	6	6%
City/County Government	7	7%
MPO/RPO	37	36%
Transit Agency	4	4%
National Association	1	1%
Private Sector	8	8%
Academia	1	1%
Other	14	14%

Question 2: How many people are participating with you in today's webinar?

	Number Responding	Percent Responding
0-2	76	76%
3-5	16	16%
6-10	8	8%
More than 10	0	0%

Question 3: What experience do you have with scenario planning?

	Number Responding	Percent Responding
No experience	5	5%
I have heard about it, but do not have firsthand experience.	32	32%
I have participated in a scenario planning process.	46	46%
I have led a scenario planning process.	16	16%

Question 4: Where are you located?

	Number Responding	Percent Responding
Denver Region	29	29%
Elsewhere	71	71%

Question 5: How will the information from today's webinar help you in the future?

	Number Responding	Percent Responding
It will help to develop/scope a scenario planning process.	12	23%
It will help to assess tools for scenario analysis.	23	43%
It will help inform public involvement for a scenario planning process.	11	21%

I am not sure.	7	13%
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Question 6: What could FHWA and FTA do to assist you or your agency with scenario planning?

	Number Responding	Percent Responding
More frequent webinars.	12	23%
Conduct/publish more research on scenario planning topics.	32	63%
Assist with developing/scoping a scenario planning process.	21	41%
Other (please email contact(s) on screen with specific suggestions).	2	4%

Question 7: Have you participated in previous FHWA scenario planning webinars?

	Number Responding	Percent Responding
Yes, I participated in all three previous webinars.	1	2%
Yes, I participated in one or two previous webinars.	22	44%
No, I did not participate in any previous webinar.	27	54%

Question 8: What topics would you like future scenario planning webinars to address?

	Number Responding	Percent Responding
Climate change.	16	33%
Broader environmental issues (e.g., open space, air quality, wetlands preservation).	15	31%
Demographics.	15	31%
Economic changes.	25	51%
Energy (availability, price, alternatives).	17	35%
Financial resources available for future investments.	18	37%
Funding resources available for scenario planning.	18	37%
Land use planning.	27	55%
Other (please email contact(s) on screen with specific suggestions).	1	2%
Public health.	16	33%
Transportation investments or infrastructure	20	41%