



## MEMORANDUM

**To:** Planning Coordinating Committee

**Date:** September 3, 2008

**From:** Bob Dean, Principal Regional Planner

**Re:** Scenario Construction

A central piece of the *GO TO 2040* planning process is the evaluation of alternative future scenarios. Scenarios are combinations of actions (policies, strategies, and investments) that represent alternative paths that the region could take toward reaching its desired future, as expressed in the Regional Vision. During summer 2008, staff discussed alternative scenario construction possibilities with the working committees. There was general agreement that we construct our scenarios using a “thematic” method. In thematic scenario construction, each scenario is a combination of individual strategies, or a course of action.

The purpose of the scenario evaluation process is *not* to select one single scenario that will be adopted in its entirety. Instead, it is meant to allow us to examine different potential paths that the region could take toward the realization of its vision. Ultimately, the most effective pieces from each of the scenarios will be chosen and combined into a single “preferred scenario.”

### Draft scenarios

Below are draft recommendations from staff concerning the identities of the alternative future scenarios that will be analyzed. Please note that each of these contains components from the topics covered in CMAP’s working committees. After the identification of each overall scenario, the contributions of the working committees are laid out in more detail.

- Scenario 1. Continue current development and investment patterns, without adopting additional planning strategies.
- Scenario 2. Preserve the aspects of the region that we value the most, and focus investments on improving our human capital. Sensitive natural areas and other open space, agricultural lands, and historic buildings, all important parts of our region’s character, will be preserved

in their current state, and damage to them from future development or investment decisions will be minimized. Current housing stock will be preserved and retrofitted for energy efficiency to provide affordable housing options for the region. Transportation investments will focus on system and operational improvements that do not require major new capital investment. While new development and changes to our region will need to happen by 2040, these will occur in a way that minimizes damage to our existing character. The region will invest more in our human capital through education, workforce development, public safety improvements, human service provision, and other similar programs. Economic competitiveness will be improved through these investments in human capital.

- Scenario 3. Reinvest in our existing communities and infrastructure, leading to more efficient land use and transportation patterns. Transit-oriented development, mixed-use and infill development, brownfield redevelopment, and other land use planning strategies will be heavily used in this scenario, and each of these approaches will include explicit planning for affordable housing and green space. Infrastructure investments will be sizable, generally involving reconstruction or expansion of facilities that serve existing developed areas. Our future economic competitiveness will be ensured through these investments in high-quality infrastructure. A better regional balance of jobs and housing will be achieved through focusing new job creation on places that already have affordable housing, spurred by infrastructure investment in these areas.
- Scenario 4. Use new technologies and ideas to find better ways to meet our region's vision. Energy use will be shifted to alternative sources and fuels, and region will become a center for green energy research and development and other "green economy" activities. Intelligent Transportation Systems (ITS) and other advanced solutions such as pricing will be applied to the transportation system, and these features will be included in all new system improvements and additions. Conservation design and urban design features will be used in new developments to reduce their impact on the natural environment. Policy ideas from other parts of the nation will be applied to address affordable housing and social issues, using technological advances as much as possible.

More information on the options that were examined in determining this scenario construction framework is included beginning on page 4.

### **Topic-specific components of scenarios**

During summer 2008, the working committees were involved in developing potential courses of action within their areas of expertise which could be components of scenarios. Their contributions are summarized below.

- Economic and community development: This committee developed four courses of action to be reflected in the scenarios. The first of these is *human capital*, which focuses on improving the region's workforce; this fits into scenario 2. The second is *innovation*, which relies on the region becoming a center of innovation (including but not limited to technological innovation); this matches with scenario 4. The third is *infrastructure*, which includes substantial investments in physical infrastructure; this fits with scenario 3. The fourth is *regional collaboration*, which involves having a regional economic development strategy; this could conceivably fit within any or all of the scenarios, and staff will be working further with this committee to identify its best fit.
- Environment and natural resources: This committee developed three courses of action for the natural environment, and several for energy. For the environment, the first is *ecocentric*, or the preservation of the most sensitive environmental land; this matches with the emphasis on preservation in scenario 2. The second is *human-nature connection*, or bringing more environmental and open space opportunities to existing developed areas; this fits with the redevelopment and infill emphasis of scenario 3. The third is *green development*, which focuses on applying conservation design and similar techniques where new development does occur; this is consistent with scenario 4. In the energy area, both demand-side (conservation) and supply-side (alternative energy sources) approaches are proposed, and staff is still working to identify the best fit for these.
- Housing: This committee developed four courses of action. The first of these is *preservation*, or seeking to preserve and restore the existing housing stock; this fits with scenario 2. The second is *balanced development*, or seeking a diversity of housing options throughout the region; there were multiple elements of this course of action, and it was split between the scenarios. The third is *green and energy-efficient development*, which minimizes the impact of new development and also retrofits existing homes to reduce energy usage and costs; this fits with scenario 4. The fourth is *compact, mixed-used, and transit oriented development*, which focuses on the location of denser housing development in infill areas; this matches well with scenario 3.
- Human services: This committee has been interested in ensuring that the human impacts of our policy and investment choices are considered, unlike most of the other committees, which are focused on the physical and community-level impacts. The committee was not asked to develop courses of action, but staff did consider the committee's stated interest in human impacts when developing the scenarios. Most of the strategies relevant for human services, which typically *invest in people*, would fall into scenario 2. Some that are more infrastructure-focused such as new facilities, which *invest in places*, would fall into scenario 3. Human services strategies that rely on *innovation* such as new technologies, policy approaches, or data sharing would fall into scenario 4.
- Land use: This committee is still providing feedback, but three basic courses of action were developed. The first is *preservation*, or preserving the most valued aspects of the region; this

matches with scenario 2. The second is *infill and reinvestment*, or focusing our development into existing communities with existing infrastructure; this matches with scenario 3. The third is *green development*, or using innovative design techniques and alternative energy sources to mitigate the impacts of development, even while substantial growth may take place on currently undeveloped land; this fits with scenario 4.

- Transportation: Three courses of action were developed for transportation, based partially on the scenarios used in the 2030 Regional Transportation Plan prepared by CATS. The first is a *low-capital* approach, which focuses on pedestrian and bicycle facilities, car-sharing, transit operating improvements, and transportation demand management (TDM) techniques; this fits with scenario 2. The second includes substantial *reinvestment in infrastructure*, with significant financial investment in improving our physical infrastructure, particularly focused on the infrastructure that already exists; this matches with scenario 3. The third includes technological and policy *innovation* such as pricing, alternative fuels, and context sensitivity, and also includes transportation investments that support innovative land use planning techniques such as transit oriented development; this matches well with scenario 4.

As this shows, similar themes resounded with multiple committees. This allowed staff to create combined scenarios which included the input of all of these committees while maintaining overall “identities” for each of the scenarios. In the coming months, staff will continue to involve the working committees in tweaking the characteristics of each scenario and in defining each one more clearly.

### **Thematic scenario construction**

At working committee meetings in summer 2008, staff presented several options for the construction of alternative scenarios. There was general agreement that we construct our scenarios using a *thematic* method, as described in the introduction to this memo. A thematic organization was chosen after examining various other possible methods for scenario construction, including:

- Varying scenarios by intensity, as in the Envision Utah process. In this construction method, one scenario includes no good planning, one includes lots of good planning, and the others vary between these bookends. This model is useful for establishing that there is support for planning in general, but it does not help very much in prioritizing actions. Therefore, this is more useful for organizations that are trying to create broad support for planning, something that CMAP assumes already exists in this region. However, this method still may have value in terms of communication with the general public.
- Maximizing one goal over another. For example, an environmental scenario could be created which focuses on achieving our environmental goals, and this could be tested

against an economic or an equity-focused scenario. While this method is fairly simple and easy to explain, it also leads to false choices (environmental actions can also be economically beneficial, for example), and it would pit groups of stakeholders against each other unproductively.

- Focus on investment in different areas. This method assumes that many of our region's resources are committed to maintaining our infrastructure, education, health care, and other systems, but that there is a certain amount of discretionary funding. Scenarios constructed using this method would focus the investment of this discretionary funding on infrastructure versus education, for example. While this is an interesting public policy question (how best can the public sector use its resources), it leads to the same unrealistic tradeoffs described above. Additionally, the focus on public sector investment ignores the role of private sector investment or other public sector actions such as regulation.
- Assigning growth to one area or another. This method would forecast population and jobs for different geographies and then adjust these forecasts to determine the effect of faster population growth in Kane County, for example. This method is undesirable given the consensus-based nature of CMAP's decision-making. Also, it is unrealistic, because neither CMAP nor any other group has the ability to simply shift jobs and people between jurisdictions. While it may lead to interesting results concerning the effects of growth in one area or another, it does not lead to a prioritization of strategies.

Before the decision that thematic scenario construction was the right method, a number of baseline scenario features were established to guide the choice of the best scenario construction method. These included the following:

- Scenarios should be logical and internally consistent, and should also be reasonable views of the future, rather than "straw men" which exist to be destroyed. Thematic scenarios can provide more realistic futures than the other methods, which tend toward extremes.
- The purpose of scenarios is to prioritize actions for implementation. Because thematic scenarios are combinations of actions, they can do this. (So could several other of the scenario construction methods, as well.)

In comparison to the reference scenario, each scenario should lead to an overall improvement in environmental quality, economic competitiveness, equity, and other vision themes. Thematic scenarios can be constructed in a way to ensure that each contains strategies to improve the environment, economy, etc. Other scenario options, such as the maximizing of one goal over another, would tend to be less balanced, and in some cases, it would be difficult to ensure that this standard were met (for example, an economically-focused scenario could easily have a negative effect on the environment.)

- Minimum standards or “floors” should be included in each scenario for basic maintenance of the system, continued funding for education, an acceptable level of planning for safety and security, etc. This could actually be accomplished through any of the scenario construction methods.
- Cost constraints should be clear. This can either be accomplished through holding costs equal and ensuring that all scenarios cost the same, or by explicitly stating the tradeoffs between benefits and costs (such as higher taxes). Because thematic scenarios are combinations of explicit strategies, either of these methods can work with a thematic scenario construction method.
- Scenarios should be treated as examples that illustrate potential futures, not the full range of futures that are available to the region. This is a key consideration in thematic scenarios, and one way in which they may be more difficult to use than other options. They will appear to have a degree of arbitrariness to anyone not involved in their construction. For example, it is easy to understand that an “environment vs economy vs equity” tradeoff is done to provoke thought and discussion. Because the choices involved in thematic scenarios are not so simplistic, and the future they describe are more realistic, they may be viewed by some as actual choices rather than illustrations.
- Scenarios should be designed with public communication in mind. This will be a greater challenge for thematic scenarios than for others. However, it is more important to select a scenario construction process that allows the most robust analysis possible. Given sufficient effort and creativity, even the most complex processes can be communicated to the public.

In addition to these standards established ahead of time, a number of issues were discussed at the working committee meetings which can be accommodated within thematic scenario construction. A key issue was the responsiveness of scenarios to outside forces, such as energy prices, overall global economic conditions, and climate change. This can be addressed by doing “robustness testing” after scenarios are constructed. For each scenario, we can ask how much sense that particular combination of actions would make in a future with considerably higher energy prices, for example. Energy usage is likely to be calculated for each scenario, so it would be a simple matter to identify the most and least energy-efficient scenarios. This may not matter for decision-making now; we need to select a preferred set of actions based on the best information that we currently have. But as we get a clearer picture of the future of energy prices, we can re-prioritize our strategies based on our changing expectations.

Another critical issue was the place of Chicago within the global economy, as it is clear that global trends do affect the region. There are a variety of actions that can be taken in response to this, ranging from increased local food production, to specializing in green architecture, to centralizing our position as an international freight hub, to trying to save our manufacturing jobs, etc. Which one of these courses of action makes most sense depends largely on one’s

future expectations. However, regardless of this, the plan needs to directly address our place within the global economy.

**ACTION REQUESTED:** Discussion.

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