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MEMORANDUM

To: CMAP Board

Date: March 3, 2010

From: Brett M. Baden, Senior Economist

Re: GO TO 2040 Policy Briefing: Economic Innovation

Since fall 2009, CMAP staff has been briefing the Board on key policy areas that are recommended to be among the priorities of GO TO 2040. At the March meeting, one of the key policy issues discussed will be **economic innovation**.

Summary

Economic prosperity depends on being able to adapt to a changing environment. Innovation, and the productivity and employment that it can spur, is essential for economic growth in the Chicago region. Innovation can be thought of as “the ability to conceive and develop new products, new services, new technologies, new ways of organizing work, and new business models...requiring the ability to invent and commercialize new products, processes and business models.”¹

Recent examples of innovation include: Chicago-based Avocet Polymer Technology, whose work on burn and scar tissue treatment has led to further advancement and a rapidly growing company (biomedical innovation); Romeoville’s Advanced Diamond Technologies, who invented a method to transform natural gas into a thin film of synthetic diamond for industrial application (technological innovation); and Groupon, an Internet-based marketing firm that started in Chicago one year ago and has since expanded into more than 30 other major metropolitan areas and received \$30 million in venture capital (financial innovation).

Since innovation is generated by the private sector, the public sector’s role is to find ways to help spur innovation by supporting ideas, institutions, and relationships in the private sector. The public sector should be especially concerned with providing support and services that are essential to innovation, but that the private sector is unlikely to provide. There are several

¹ Brookings Institution Metro Policy: *Shaping a New Partnership for a Metropolitan Nation*. 2008.

public sector activities that can help industries to innovate and grow; these activities are what the recommendations of *GO TO 2040* should focus on.

Guided by the Economic and Community Development working committee, CMAP's research on innovation has involved municipal economic development officials, innovation focused organizations, and private businesses. This work builds on research into the generation of innovation by RCF Economic and Financial Consulting, Inc. RCF has produced several reports for CMAP that detailed how and where innovations are generated by the private sector, universities and other research institutions (such as national laboratories), and the public. Staff has also reached out to stakeholders (such as the United Parcel Service and the Manufacturer's Renaissance Council) not traditionally involved with innovation policy in order to get external viewpoints and opinions on how to spur innovation. These interviews have provided corroboration for many of the approaches staff have been pursuing and have helped generate ideas about additional subjects to research. In addition, these interviews have helped CMAP develop practical, implementable recommendations that may be achievable in the short-term to spur innovation and help create a local "culture of innovation," where trial and experiment are rewarded and remunerated.

While this recommendation focuses on economic innovation, many other fields also rely on innovative ideas. *GO TO 2040* supports many creative approaches to regional challenges, such as variable pricing of roadways and parking, or real-time sharing of data by government agencies. These are among the innovative ideas contained within other recommendation areas.

Recommended Direction for GO TO 2040

The goals of *GO TO 2040*'s approach to innovation are to improve government policies, dismantle barriers to innovation, and improve services that can enhance innovation and support our regional industry specializations. Progress toward these goals will increase economic prosperity and provide more jobs in the region. The plan also recommends that the region's municipal and county governments, colleges, and state and federal agencies should find and fill gaps where the private sector is not providing the roles and institutions necessary to support innovation.

No specific agency or organization is the single leader of innovation support in the region. Various organizations like World Business Chicago, the Chicagoland Chamber of Commerce, MEGA, and economic development agencies are addressing the concept in their own ways. The very nature of innovation is such that unified leadership in this area may lead efforts astray. However, it is very important that regional innovation leaders maintain an open dialogue; the existing series of conferences, seminars, and meetings should be continued and enhanced. CMAP may have a role in facilitating these meetings, especially in bringing public-sector leaders together with the business community.

The recommendations address but do not rely on state and federal government policies and funding sources, and they include recommendations that can be pursued without any

significant new funding. At the same time, investing in regional innovation is gaining importance in federal policy as a way to support economic growth. Emerging funding opportunities will require regions to be highly organized to be competitive. These recommendations can help position the region to be more competitive for public and private funding that will lead to job growth.

Recommendation Policy Areas

The plan will propose several cross-cutting recommendation areas that should be applied across all industries. The first four recommendation areas suggest applied policy actions that can generate immediate results: improving labor markets, enhancing technology transfer, identifying funding opportunities, and supporting green innovation. There are also two higher-level recommendation areas to enable more regional innovation in the long run: removing obstacles to innovation and creating an innovation culture. Several themes run through each of these cross-cutting recommendation areas. Each has components related to *research*, to improve our understanding and ability to measure innovation; *collaboration*, to bring together organizations and institutions to solve common problems; and *implementation*, to identify specific policy ideas that can be put in place immediately.

Improve the Labor Market. The primary driver of the region's future economic prosperity is the quality of the labor force. Though innovation requires a supportive environment, at its heart it is created by people with ideas, and this cannot happen without a skilled, talented workforce. Improving the region's workforce is critical to both meet current hiring needs as well as to show businesses within and outside of the region that Chicago has a high quality pool of labor ready to help the region grow. Entrepreneurial training is an important part of this approach, and some existing efforts like the Illinois Institute of Technology's Business Innovation program provide good local examples. Small business start-ups are an important part of innovation, but so are existing medium and larger companies that are ready take their ideas to the next level, expanding their labor forces and creating new jobs. Improvements in the region's workforce could help us generate more "gazelles" (fast-growing companies), spur additional innovation, and create more jobs.

The mismatch of jobs with appropriately skilled workers is a significant concern relative to the region's future prosperity. Addressing this requires collaboration between education systems of all levels, workforce development and training programs, and employers. In addition to being mentioned here, improving education and workforce systems is a stand-alone recommendation of the plan that will be discussed with the Board in April.

Enhance Technology Transfer and Commercialization. Technology transfer draws ideas from the Chicago region's many excellent research institutions and promotes commercialization of theoretical advances. Private sector industries must be more closely linked with the region's world-class researchers to be able to draw ideas from them for implementation; this implementation can improve the region's economy and provide a testing ground for the research. This is a collaborative activity, and regional organizations should facilitate dialogue and information exchange within and across private industries, universities and other research

institutions (including the region's federal laboratories), entrepreneurial programs, and producers and consumers. Leadership and coordination from either the Illinois Department of Commerce and Economic Opportunity (DCEO), the Illinois Technology Alliance, or some other third-party, non-university affiliated organization could be very helpful in this effort.

Improved measurements of the success of technology transfer and commercialization are also necessary. One promising program, the ITEC technology collaborative effort, involved universities donating faculty time to review technology commercialization plans for start-up firms; state funding for this program has been cut but should be reinstated or an alternative source found.

Increase Funding Opportunities. Innovative businesses require financing to start-up, expand, and bring their ideas to market. Targeted research is needed to explore how financing of innovative businesses currently works, to measure current levels of investment, and to develop strategies to increase investment, including identifying the appropriate role for the public sector. One appropriate role involves education; policymakers, technical assistance providers, and industry experts should collaborate to make sure that existing incentive programs and financial resources are well understood and accessible by private businesses. Financing can be a particular problem for businesses as they move from incubator programs into the business world, and strategic partnerships are needed to provide financing at this stage. These collaborations should be designed to align the region's activities with new federal funding opportunities such as the Regional Innovation Clusters program.

Funding needs in several areas are immediately apparent and should be addressed. These include the creation of a new Chicago region clean tech venture capital fund, evaluation of and reinstatement of the Illinois Small Business Innovations Research funding, reinstatement of the Technology Challenge Grant Program, and reinstatement of the ITEC program (described above). If state funds are not available for these programs, regional or federal funding for them should be sought.

Support Green Innovation. Environmentally responsible and sustainable business practices and industrial operations – also known as “green jobs,” “green industry,” or the “green economy” – will be an integral part of successful business in the future, and these are areas where innovations are occurring most rapidly. These improvements should be encouraged across all sectors in the region. The ideas listed elsewhere in this memo – building a strong labor force, improving technology transfer, increasing funding opportunities, removing obstacles, and creating a culture of innovation – are all applicable to the green economy.

There are additional specific actions the public sector can take to support green innovation. Development of a regional sustainability plan would provide an important foundation for green innovation; the plan would track growth in the region's green economy. A key function of such a plan would be to provide guidance on how to create additional demand for renewable energy, energy efficiency, green building, waste reduction and recycling, and resource conservation at the municipal and county levels. Evaluation and improvements with

environmental quality certification programs, such as LEED, would help make certain that such certification remains consistent with updated technological progress and market needs.

Remove Obstacles to Innovation. Sometimes, outdated government regulations may unintentionally create barriers to innovation. A critical element of the “drill down” research in specific industry sectors (described at the end of this memo) will be to assess whether there are policy or regulatory barriers that can be re-designed to encourage innovation. Goal-based regulation has the potential to incent people and businesses to find new solutions for problems previously solved through regulatory control.

For example, public policies at the county and municipal levels that are based on dated technological standards should be modernized. Many development ordinances for wind and solar power in the region are based on 1970s technology and do not reflect modern technological standards; some counties in the region are already examining this issue. Emission reduction targets for electric utilities are another good example of goals-based regulation. Mandating emissions reductions leaves open the specific way to go about it – which creates opportunities for innovation. Regulation that mandates specific emission reduction technology will remove any incentives to come up with innovative advances. A third example concerns the expansion of broadband in the region. In light of recent federal and state actions that support broadband expansion, the state should prioritize review of existing regulations to make sure they are current and that they encourage innovation by setting goals.

Develop a Culture of Innovation. Leading stakeholders in the region attest that the region lacks a culture of innovation, unlike successful innovative regions like Silicon Valley. To become a leader in innovation, the region needs to understand why this is the case, and how to change attitudes to support the experimentation and creativity necessary to produce commercial innovations. Innovation, by its nature, involves risk-taking and, frequently, failure. These are characteristics that many stakeholders do not believe are supported by the culture of the metropolitan Chicago region and, beyond that, the entire Midwest.

But there have been economic sectors within the region that have produced innovations, such as the finance industry (which in recent years probably took the concept of innovation too far), and the cultures of these sectors should be explored to see if any lessons can be applied in other, more risk-averse sectors. Programs and competitions that encourage innovation among students or budding entrepreneurs should be made more widespread to show that often mistakes are valuable learning experiences. Some innovators in the region have been successful despite initial setbacks; these people should be consulted to learn what barriers they faced and how they overcame them, and their stories should be publicized to help educate the region about the value of experimentation and resiliency following mistakes.

Application of Innovation Research to Specific Sectors

Our region’s economy is diverse but also specialized in many key sectors. These regional specialization clusters, and emerging opportunities related to them, should be leveraged and supported. Since each cluster faces unique challenges, opportunities for innovation will be

different for each cluster. Based upon staff expertise and consultation with stakeholders in these areas, the plan's recommendations on innovation are expected to "drill down" to provide concrete implementation strategies for the **energy, freight and logistics, and health care/biomedical** sectors. As a next step, the six cross-cutting recommendation areas described above will be explored in each of these sectors.

ACTION REQUESTED: Discussion.

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