

USE DATA TO MAKE SMART INVESTMENTS

With funding sources flat or declining, rising costs and the federal contribution becoming less reliable, making more efficient use of resources must be the guiding principle for transportation planning and investment for the foreseeable future. Thanks to improved analytic tools and the availability of new data sources, we can now gain a better understanding of the return on investment strategies across a broad suite of indicators. Unlike a retirement account, where the only important indicator of return on investment is the amount of money that has accumulated, there are many factors to weigh and prioritize in the regional transportation system.

This section looks at a broad array of tools for analyzing the performance of existing transportation systems and assessing the comprehensive impact of transportation plans on everything from the life-cycle cost of maintenance and repair to affordability, public health and access to opportunity for disadvantaged populations. It highlights techniques for cost-benefit analysis and using data to guide planning, as well as how MPOs are using certain performance metrics to judge success.

Federal requirements call for metropolitan planning organizations (MPOs) to consider the eight planning factors discussed in Focus Area 1, but the regulations offer no specifics on how MPOs are to weigh these goals or measure their success in meeting them. Under MAP-21, USDOT is developing new guidelines for MPO performance measures. As of this writing it appears that innovative MPOs are likely to remain ahead of federal requirements.¹

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The innovative MPO develops and uses measures that comprehensively capture regional quality of life and economic vitality. Among the actions it can take to use data to make smart investments are:

- **Establish comprehensive performance measures**
- **Prioritize maintenance and safety to maximize return on investment**
- **Analyze combined housing and transportation costs**
- **Perform health impact assessments**
- **Address regional disparities through opportunity mapping**

¹ USDOT has developed extensive resources on performance-based planning available through its Transportation Planning Capacity Building program: http://planning.dot.gov/focus_performance.asp.

ESTABLISH COMPREHENSIVE PERFORMANCE MEASURES

How do we know when our plans and investments yield the results we seek? How should we measure performance? The traditional approach is absurdly narrow: How many cars can we push through a given area in a given amount of time. This transportation measure is known as Level of Service and relying on it or other simple measures of automobile congestion and throughput leaves out key effects of the transportation system and fails to paint a complete picture of regional quality of life or the full range of costs and benefits. Innovative MPOs are developing a comprehensive set of performance measures that go beyond congestion and mobility.

The opportunity

At a basic level, using performance measures helps MPOs track outcomes and helps the public understand the rationale for how projects are prioritized. Many MPOs prepare plans and policy statements that include goals for improving air quality or reducing automobile congestion levels by certain amounts over the next 20 years. However, MPOs must see their charge as one that acknowledges the multi-faceted impact of transportation on all kinds of indicators of regional success. Transportation is inextricably tied to public health, economic growth, regional disparities and environmental outcomes far beyond air quality or congestion. MAP-21 includes a new requirement for performance-based planning that MPOs and state DOTs will need to meet.¹ However, national standards for performance should be seen as a floor, not a ceiling, for what metropolitan areas need to consider as desirable outcomes when evaluating plans, policies and projects.

There are two angles from which performance measures can be applied: post-facto analysis of a region's transportation system and forward-looking analysis of proposed plans to guide project selection based on predicted outcomes.

MPOs develop their performance measures either through public engagement to identify those most important for the region, or through an internal process of applying quantitative analysis to systems and plans. Some MPOs use a combination of both, developing analyses that are in turn presented to stakeholders, who offer input as part of a discussion of possible futures.

Putting it into practice

The gold standard in using comprehensive performance measures to guide planning and evaluate outcomes belongs to the **Metropolitan Transportation Commission (MTC)** in the San Francisco Bay Area. While it represents the upper realm of current practice, the MTC can provide inspiration to MPOs of all sizes. See full case study in the **Innovation in Action** section at the end of this chapter.

Screening projects and issuing progress reports. For the most recent long-range transportation plan for the Kansas City Metropolitan Area, the **Mid-America Regional Council (MARC)** designed a new system of goals and performance measures to guide the allocation of \$18 billion. After an extensive process to identify

¹ www.fhwa.dot.gov/tpm/

a set of nine plan goals,¹ MARC staff reviewed and scored all submitted projects on how well they met the goals, solicited additional public input on the projects and their relation to the goals and developed a list of recommended projects for the long-range plan. These recommendations were then considered by the MPO board for the final plan update. In the resulting plan, 90 percent of the plan's projects improve existing facilities rather than build new ones and 75 percent of the projects support higher-intensity land use in the region's identified activity centers.²

MARC has particularly excelled in making periodic progress reports since the plan's adoption in 2010. Annual reports track two or three factors under each of the nine regional goals, with one or more quantitative indicators for each factor.³ The reports clearly show officials and stakeholders the trend lines for each indicator in relation to the desired outcomes. It remains to be seen how much this analysis will influence the next plan update, but the accessibility of the information could help to create an informed public better able to engage in development of the update. The Association of Metropolitan Planning Organizations (AMPO) recognized MARC's efforts with an award in 2013 for "Outstanding Overall Achievement for a TMA MPO."

Measuring "opportunity indicators" and climate impacts. The **Sacramento Area Council of Governments (SACOG)** has been particularly innovative in incorporating into its planning process performance measures relating to environmental justice and social equity. In addition, SACOG has been a leader in meeting the goals of California's SB 375, a 2008 law aimed at reducing climate impacts through better integration of land use in transportation planning.

For the former, SACOG developed "opportunity indicators" such as access to jobs and higher education for lower-income or minority communities. Additional indicators include those that reflect neighborhood business climate, affordable housing and access to park acreage.⁴ SACOG has also pioneered the use of a performance measure that indicates the proportion of the population that suffers from traffic delay: congested vehicle miles traveled per capita. In contrast to traditional measures of congestion that look at the quantity of congestion in relation to the infrastructure, this measure relates congestion more to the experience of residents.⁵ For more detail on SACOG's climate-related efforts, see the case study following Focus Area 7.

Measuring quality of life and freight access at a smaller MPO. An additional MPO that serves as a good model for performance-based planning is the **Coastal Region (CORE) Metropolitan Planning Organization in Savannah, Georgia**. CORE's performance measure categories include congestion, safety, livability, environment and economic factors and reflect the region's position as a key multimodal freight hub. The performance targets were set in coordination with state DOT targets and will be used to identify investment priorities in the next long-range plan.⁶

1 The nine plan goals are accessibility, climate change and energy use, economic vitality, environment, place making, public health, safety and security, system condition and system performance: www.to2040.org/Vision_and_Goals/Plan_Goals/index.aspx.

2 www.to2040.org/Projects/selectionprocess.aspx

3 www.to2040.org/Measuring_Progress/index.aspx

4 <http://sacog.org/2035/files/Draft-mtpscscs/appendices/G-6%20MTP-SCS%20Performance%20Measures.pdf>;

5 www.transportationresearch.gov/dot/fhwa/pmc/Documents/AMPO%20Listening%20Session/SACOG%20Presentations.pdf

6 www.transportationresearch.gov/dot/fhwa/pmc/Documents/AMPO%20Listening%20Session/CORE%20Presentation.pdf

PRIORITIZE MAINTENANCE AND SAFETY TO MAXIMIZE RETURN ON INVESTMENT

Traditional goals of reducing congestion by increasing the speed and throughput of traffic make expanding roadways a priority. This creates an ever growing need for more funding, among other negative challenges. Innovative MPOs develop a more sophisticated calculus of return on investment and as a result tend to spend more on preserving and making more efficient use of highways while offering alternatives to congested commutes.

> The opportunity

In developing a cost-benefit analysis for potential projects, it is important to remember that maintaining infrastructure in a good state of repair prevents the need for costly replacements and saves money in the long run while creating jobs for the region.¹ Saving lives, too, is a critical benefit that should be highly valued in assessing the potential return of infrastructure projects. Innovative MPOs that have considered the projected return on investment from transportation projects have found that projects which address these two key factors produce the highest returns.

> Putting it into practice

Developing a system to track and prioritize road maintenance. The **MTC** was an early leader in prioritizing system maintenance in response to some very practical challenges the MPO faced. In the early 1980s, The MTC identified a policy and funding disconnect whereby member jurisdictions identified maintenance as a priority, but were spending less than 60 percent of available funds to maintain roads. To address this, the MTC developed a Pavement Condition Index that drove a program to prioritize and manage maintenance and repair. Decades later, MTC offers a sophisticated software program for pavement management known as StreetSaver, which stores and retrieves data on pavement condition, makes complex calculations much easier and produces easily understandable reports.² The software is available online in various forms (and with varying costs) at www.mtcpms.org/products/index.html.

Another region where “fix-it-first” applies in word and deed is the St. Louis Metropolitan Area, where the **East-West Gateway Council of Governments (E-W COG)** has established system preservation as the top regional priority and adopted a long-range plan with 70 percent of the region's highway budget going toward maintenance and operation.³

Tracking the impacts of degraded infrastructure to prioritize repairs. The **North Jersey Transportation Planning Authority (NJTPA)** developed a 2011 “Guidebook for Project Performance Measurement” to provide guidance in evaluating the return on investment of maintenance and preservation projects. It is designed as a “living document” to reflect lessons learned and best practices as the region and other MPOs across the country develop and implement performance-based planning.

1 Ewing, Reid and Bartholomew, Keith with Spain, Allison and White, Alex. Smart Growth America and Metropolitan Research Center at the University of Utah. (Forthcoming). “Best Practices in Metropolitan Transportation Planning.”

2 www.mtcpms.org/FAQs/

3 www.smartgrowthamerica.org/2011/02/04/new-report-reveals-smart-transportation-spending-creates-jobs-grows-the-economy/

The guidebook provides step-by-step instructions to determine data needs and sources, identify the proper scale for analysis, apply the evaluation methods and properly interpret and apply the findings.¹ Among the specific performance measures used to evaluate a project's impact on repair, maintenance and safety are:

- Percentage of roadway, bridges or train track in good/fair/poor condition;
- Annual service disruption hours;
- “Resiliency” indicators showing how well the system operates after a major disruption; and
- Annual number of riders impacted by service disruptions.

The performance assessments directly feed in to the authority's Congestion Management Process (CMP), through which the MPO identifies suitable approaches for improving the transportation system's convenience and reliability.²

Assigning weight to performance measures to establish priorities. One hurdle in implementing performance measures is how to apply them appropriately in different contexts within a metropolitan area. Some measures may be appropriate when talking about inter-regional freeway connections but completely inappropriate at the neighborhood level. **The Chattanooga-Hamilton County/North Georgia Transportation Planning Organization (Chattanooga TPO)** developed an innovative approach to this challenge. Through a public process, the TPO defined indicators for evaluating specific projects as well as overall systems, resulting in a set of 12 performance measures within seven categories.³ The performance measures were then weighted across three scales, “Within Community,” “Community to Region,” and “Region to Region,” with the weights varying by the level of significance for each scale. This allowed projects to be scored and ranked according to the unique needs of each context. Congestion reduction and economic growth measures, for example, are more heavily weighted in the inter-regional context, while environmental sustainability (which includes context-sensitive design and non-motorized access measures) is more heavily weighted at the community scale. The process led to a regional transportation plan that doubled funding of system preservation and for bicycle and pedestrian improvements in relation to the previous plan update.⁴

ANALYZE COMBINED HOUSING AND TRANSPORTATION COSTS

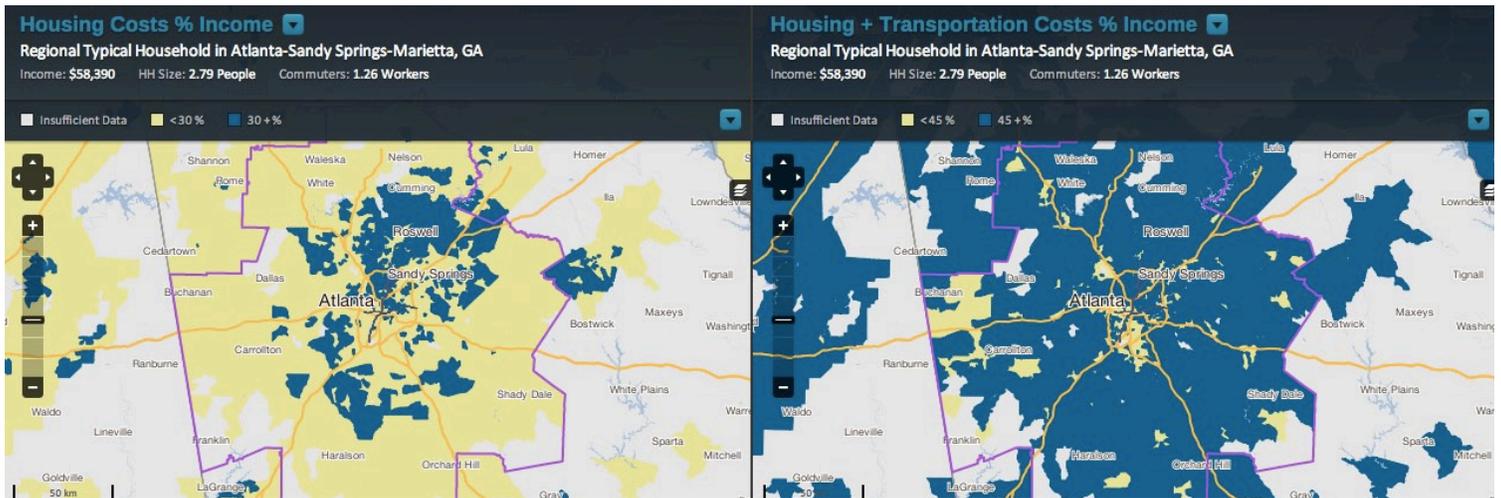
Homes far away from job opportunities may be more affordable, but the transportation costs often offset any savings. Some MPOs have begun to look at housing and transportation costs together to paint a more complete picture of regional affordability and how transportation investments and land-use strategies together improve opportunities across a region.

1 www.njtpa.org/Planning/Regional-Studies/Completed-Studies/Performance-Results-Assessing-the-Impacts-of-Imple/PerformanceResults.aspx

2 www.njtpa.org/Planning/Regional-Studies/Recently-Completed-Studies/Performance-Results-Assessing-the-Impacts-of-Imple/PerformanceResults/NJTPA_PerformanceResults_FinalGuidebook_COMPLETE_0.aspx

3 The seven categories used were system maintenance, congestion reduction, safety and security, economic growth/freight movement, environmental sustainability, system reliability and project delivery: www.ampo.org/wp-content/uploads/2013/12/Selin-Taylor_AMPO-2013-Chatt-Performance-Framework_V3.pdf.

4 www.ampo.org/wp-content/uploads/2013/12/Selin-Taylor_AMPO-2013-Chatt-Performance-Framework_V3.pdf



A sample map set from the H+T index of Atlanta shows the difference between housing costs as a percentage of income at left and housing + transportation costs at right. The yellow is considered affordable. From the Center for Neighborhood Technology's Housing + Transportation Index: <http://htaindex.cnt.org/map/>.

➤ The opportunity

During the recent housing market downturn, many suburban and exurban areas saw a disproportionate number of residents experience financial difficulties and experience foreclosure, despite the relatively cheap housing available in these communities. This phenomenon was due at least in part to the higher transportation costs experienced by these residents, who were having to commute long distances by car to job centers and finding their finances squeezed by rising gas prices.

MPOs can incorporate analysis of combined housing and transportation costs into their public information and engagement as well as their planning process and can work with member jurisdictions to incorporate the findings into local planning as well. There are sources of data and analysis that obviate the need for MPOs to do the research themselves, though they may find that they have specialized datasets that can supplement or replace those used by outside sources.

The original source, the H+T Affordability Index, was generated by the Center for Neighborhood Technology (CNT) and remains a robust source of information for both the public and planners seeking to understand the overall affordability picture in their regions. In 2013, the U.S. Department of Housing and Urban Development (HUD), in collaboration with USDOT, introduced an online Location Affordability Portal.¹ The Portal contains a cost calculator for households and real-estate professionals, along with maps and data tools for planners, policymakers and developers. The latter are designed to help public agencies like MPOs communicate with stakeholders about different development scenarios.

➤ Putting it into practice

Comparing transportation costs to competitor regions. Several MPOs have used combined housing and transportation data analysis as an input to their planning processes. The **Nashville Area Metropolitan Planning Organization** is using the CNT H+T Affordability Index data to identify affordability challenges

1 www.locationaffordability.info

as part of its current process for developing the 2040 Regional Transportation Plan. Preliminary analysis shows that more than 90 percent of the region's households spend at least 20 percent of their income on transportation. This is well above the national average and the MPO notes that the figure compares unfavorably to peer regions like Denver, where only 42 percent of households reach that level of transportation spending.¹ Incorporating this kind of external data as a foundation for long-range planning can help MPOs get a grasp on how their regions compare to others across the country — creating a powerful lever for engaging the public and catalyzing public officials to take action.

Reducing housing + transportation costs with expanded options. Nearly a decade ago, Illinois became the first state to require an analysis of combined housing and transportation costs when considering economic development incentives and funding allocations within MPO areas. The rule applies to the departments of Commerce and Economic Opportunity, Transportation and the Illinois Housing Development Authority.² The **Champaign County, IL, Regional Planning Commission (CCRPC)** allocates funding through an MPO dubbed the **Champaign Urbana Urbanized Area Transportation Study (CUUATS)**. In 2006, the CCRPC joined several regional partners, including the chamber of commerce, bike advocates, the local farm bureau, immigrant and refugee services, the school district and local governments to develop and implement a regional Mobility Implementation Plan, given the moniker “MiPlan”.³ Through a study of regional transportation trends including surveys, stakeholder interviews and neighborhood meetings, the group found that many of the region’s residents — the majority of whom travel primarily by car — were financially strained by their transportation needs.

Through MiPlan, the area’s transit agency expanded service and reduced fares and city governments as well as the University of Illinois took steps to improve conditions for bicyclists and pedestrians. The efforts significantly increased (to around 90 percent) the number of residents of the region living within a quarter-mile of a weekday bus route.⁴ The September 2014 CUUATS’ draft MTP entitled “Sustainable Choices 2040” emphasizes two new themes — accessibility and affordability — and for the first time the MPO provides information on transportation costs measured both in travel time and dollars.⁵

Laying the groundwork for a strategy to reduce H+T costs in future updates. In St. Louis, the **East-West Gateway Council of Governments (E-W COG)** performed detailed analysis of its region based on the H+T Affordability Index as a technical supplement to its latest Regional Transportation Plan. Using updated information available locally, including estimated transportation costs from the region’s travel demand model, the agency sought to answer three questions:⁶

1. Which parts of the region are affordable to a median-income household?
2. Which parts of the region are affordable to the households that currently reside in those communities?
3. How are urbanized areas, rural areas and environmental justice areas affected by rising gasoline prices?

1 www.nashvillempo.org/plans_programs/rtp/2040_rtp.aspx

2 www.cnu.org/cnu-salons/2010/04/illinois-signature-away-adopting-cnfs-housing-transportation-affordability-index

3 www.ihavemiplan.com/index.htm

4 Transportation for America, “The Little Cities that Could: New visions bring new life to Illinois rail towns.” 2013. www.t4america.org/wp-content/uploads/2014/12/Illinois-Rail-Report-T4America-Web.pdf

5 www.cuuats.org/lrtp/documents/lrtp-2040-draft/lrtp-2040-intro-index-draft/view

6 www.ewgateway.org/pdffiles/Library/Trans/RTP2040/RTP-StateOfTheSystem-2011.pdf (62)

The resulting analysis showed that long automobile commutes were a significant cost burden on many of the region's residents and pointed to the need to develop a “multi-faceted strategy that may include balancing commercial and residential development in growing areas, considering workforce housing in decisions about commercial development and increasing employment opportunities in the urban core.”¹

Finally, the **Knoxville Regional Transportation Planning Organization** used the H+T data to inform their thinking as they approached their regional visioning effort, called “PlanET” for Plan East Tennessee. The index was used to assess baseline conditions and a custom analysis was done to project the impact of the preferred regional growth scenario on household transportation costs.²

PERFORM HEALTH IMPACT ASSESSMENTS

Transportation has been linked to health in a variety of ways: the national rise in obesity rates resulting from sedentary lifestyles, automobile collisions as a leading cause of death for many age brackets and increased rates of asthma and other health conditions resulting from poor air quality and pollution. MPOs are realizing that health outcomes are as important to a region as any other indicator of success.

The opportunity

Health Impact Assessments (HIA) are an important analytic tool for MPOs to use in the long-range planning process and when evaluating particular projects. The Health Impact Project, a collaboration of the Robert Wood Johnson Foundation and Pew Charitable Trusts, describes HIAs as processes that allow health to be taken into account in a broad range of public decision-making sectors and in a variety of contexts, including urban, suburban and rural and at local, regional or state-wide scales.³ In the MPO context, HIAs can help transportation planners, officials and the public think about the trade-offs involved with different transportation alternatives. These can include the localized impacts of emissions due to changes in vehicle traffic and whether a project encourages physically active, non-motorized use and provides for the safety of these users.



Source: Pew Charitable Trusts. www.healthimpactproject.org/hia/process

1 www.ewgateway.org/pdf/Library/Trans/RTP2040/RTP-StateOfTheSystem-2011.pdf (71)

2 www.planeasttn.org/

3 www.healthimpactproject.org/hia/us

Putting it into practice

Responding to a state requirement to analyze health impacts. Some states have issued directives requiring health impact assessments to be a part of the transportation decision-making process, either state-wide or for specific projects.¹ Massachusetts, for instance, passed transportation legislation in 2009 that created an inter-agency Healthy Transportation Compact charged with, among other tasks, “[implementing] health impact assessments for use by planners, transportation administrators, public health administrators and developers.”² The **Pioneer Valley Planning Commission (PVPC)** in the Springfield, MA area facilitates HIAs in transportation and other sectors, developing resources, toolkits and model regulations. The commission also analyzes municipal zoning to encourage physical activity and access to healthy food.³ The PVPC is collaborating with the Massachusetts Department of Public Health and two local jurisdictions to conduct an HIA of select municipal recommendations from the Pioneer Valley Climate Action/Clean Energy Plan.⁴ In addition, the PVPC participates with the Springfield Planning Department and several community organizations in a Built Environment Task Force to examine transportation barriers in Springfield neighborhoods.⁵

Voluntary use of HIAs to shape a long-range plan. Even when HIA’s are not mandatory, MPOs have taken the initiative to use this planning tool. The **Nashville Area MPO** made public health a strong emphasis in its 2035 long-range transportation plan.⁶ The MPO participated in a HIA pilot project in 2010 to evaluate how to improve health outcomes in the transit-oriented development sites included in a study of a proposed transit corridor. The first phase of the project resulted in various design changes to encourage safe, active transportation and incorporate senior housing, community gardens, walking paths, a community gathering space and public art. A second phase involved focus groups and surveys looking at public perception of the connection between health and the built environment.⁷

In crafting its long-range plan, the MPO recognized that lower income and other disadvantaged populations have been disproportionately affected by past transportation decisions and added a special screen for equity among population groups. Planners looked closely at “health impact areas,” census tracts that have a higher than average rate of poverty, minority populations and zero-car households. They also looked at ways to provide safe access to schools and healthy food, and conducted a major regional household transportation and health survey.

1 www.governing.com/blogs/view/gov-health-impact-assessments-bringing-health-to-all-policies.html

2 www.massdot.state.ma.us/GreenDOT/HealthyTransportationCompact.aspx

3 www.pvpc.org/projects/public-health

4 www.pvpc.org/projects/health-impact-assessment-climate-plan-recommendations

5 www.pvpc.org/sites/default/files/draft%202015%20UPWP%20latest%20update.pdf

6 www.nashvillempo.org/docs/Irtp/2035rtp/Docs/2035_Doc/2035_Chapter9.pdf

7 www.nashvillempo.org/docs/Irtp/2035rtp/Docs/2035_Doc/2035_Chapter9.pdf

ADDRESSING REGIONAL DISPARITIES THROUGH OPPORTUNITY MAPPING

Traditional MPO data analysis reports on the number of low-income residents, racial characteristics and other basic demographic information with little discussion of where these residents live or work. Deeper analysis finds that these populations often have unequal access to safe, affordable and convenient transportation options that can connect them to jobs, schools, healthcare or regional destinations. This lack of access to opportunity severely limits their quality of life. Several innovative MPOs now analyze and map the nexus between transportation and opportunity to understand the interactions with other important public policy issues, including public education, economic mobility, public health, environment and neighborhood stability.

The opportunity

Our understanding of what makes a neighborhood healthy, vibrant, successful and economically viable has come a long way in recent years. One element of that new understanding is the recognition that regional infrastructure and transportation systems are crucial to connecting people to regional economic, educational, social and cultural or environmental amenities. Neighborhoods with a dearth of connectedness can be said to have “opportunity isolation” and are more vulnerable to economic challenges. Economic competitiveness suffers in regions with large or unaddressed opportunity isolation areas. “Opportunity mapping” is an analytical approach that combines robust data collection, evaluation and geographic mapping to identify neighborhoods that suffer opportunity isolation.¹

Addressing neighborhood opportunity through transportation policy and investment is complex. It can include direct-assistance programs — often in collaboration with community non-profits and other public human service agencies — to enhance transportation options in low-income neighborhoods that are separated from job centers and other destinations by distance or other barriers, or poorly served by transit. The long-range planning process is an important means to consider neighborhood connectedness, as the unevenness of opportunity in a region's neighborhoods stems in large part from years of cumulative transportation and land-use decisions.

Through opportunity mapping MPOs provide powerful information to inform community engagement, planning and analysis around equity goals. Opportunity maps reveal where opportunity — in the form of jobs, services, social interaction and other aspects of a fulfilling life — is located within the region and captures the demographic characteristics of areas with low and high opportunity.

Putting it into practice

As part of HUD's Sustainable Communities Initiative (SCI) and the grant programs included within it, HUD required opportunity mapping within regional sustainability planning and provided data and guidance to grantees to facilitate the process. Two examples of opportunity mapping through the SCI were in Seattle - Tacoma, WA with the **Puget Sound Regional Council (PSRC)** and efforts by the **Capital Area Council of**

1 http://kirwaninstitute.osu.edu/wp-content/uploads/2013/09/FINAL_OM_9-5.pdf

Governments (CAPCOG) in Austin, TX. In the case of the PSRC, the opportunity maps were included in the VISION 2040 planning documents that laid out a regional plan for a more sustainable future. In particular, the opportunity maps included an examination of three light rail corridors and how they facilitate opportunity, along with looking at how future transit investments can enhance and even out the opportunity picture.¹ In Austin, the effort provided insight into the city's current and future housing affordability trends, allowing leaders to proactively address issues of gentrification and anticipate community needs.²

A region that has leveraged assistance through the SCI to get a thorough examination of regional demographics and opportunity and their relation to transportation, is Houston, TX. See the full case study at the end of this chapter in the **Innovation in Action** section to learn how the **Houston-Galveston Area Council (H-GAC)** is looking at the region's neighborhoods through the lens of opportunity.

Resources

- FHWA website on Performance Based Planning: www.fhwa.dot.gov/planning/performance_based_planning/resources/
- Transportation Research Board of the National Academies. (2011) *National Cooperative Highway Research Project Report 708: A Guidebook for Sustainability Performance Measurement for Transportation Agencies*: http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_708.pdf
- Kirwan Institute. (2013) Guide to Opportunity Mapping. http://kirwaninstitute.osu.edu/wp-content/uploads/2013/09/FINAL_OM_9-5.pdf.
- HUD. Location Affordability Portal: www.locationaffordability.info
- USDOT, Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center. (December 2012). *Metropolitan Area Transportation Planning for Healthy Communities*. FHWA, Office of Planning, Environment and Realty, FHWA-HEP-13-006. www.planning.dot.gov/documents/Volpe_FHWA_MPOHealth_12122012.pdf.

1 www.psrc.org/growth/growing-transit-communities/regional-equity/opportunity-mapping/

2 <http://greendoors.org/programs/opportunity-mapping.php>

INNOVATION IN ACTION - CASE STUDIES (FOCUS AREA 4)

ESTABLISHING AND USING PERFORMANCE MEASURES

Metropolitan Transportation Commission – MTC (San Francisco, CA)

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area, home to more than 7 million people and 101 municipalities. Three of those municipalities are major population and employment centers in their own right: Oakland, San Jose and San Francisco. The MTC functions as the regional transportation planning agency, a state designation and the region's metropolitan planning organization (MPO), a federal designation. It has one of the larger MPO staffs in the country.¹

1 www.ops.fhwa.dot.gov/publications/fhwahop09047/index.htm

The San Francisco Bay Area has long realized the need for collaboration to address regional challenges. Given the size and complexity of the region, developing and using comprehensive regional data became important for navigating political tensions and ensuring more cost-effective outcomes. In 2001, MTC began using performance measures formally in preparing the Regional Transportation Plan (RTP).¹ In 2002 the state legislature adopted SB 1492, which requires MPOs to use performance criteria in evaluating and prioritizing RTP investments at the project and corridor level.²

In 2013, the MTC and the Association of Bay Area Governments (ABAG) jointly adopted Plan Bay Area, which serves as both the long-range transportation plan and a Sustainable Communities Strategy – a formal document required by the state's climate change legislation to meet targets for reducing greenhouse gas (GHG) emissions.³ Plan Bay Area used a new type of performance assessment framework to integrate transportation and land-use scenarios. Through substantial public involvement the MTC developed 10 performance targets for economic vitality, climate protection, adequate housing, healthy and safe communities, open space and agricultural preservation, equitable access for vulnerable populations and transportation efficiency:⁴

1. Reduce per-capita carbon emissions from cars and light-duty trucks by 15 percent.
2. House 100 percent of the region's projected 25-year growth without displacing current low-income residents.
3. Reduce premature deaths from exposure to fine particulates by 10 percent and coarse particulates by 30 percent.
4. Reduce injuries and fatalities for all collisions by 50 percent.
5. Increase average daily walking or biking per person by 70 percent (average of 15 minutes per person per day).
6. Direct all non-agricultural development within the urban footprint.

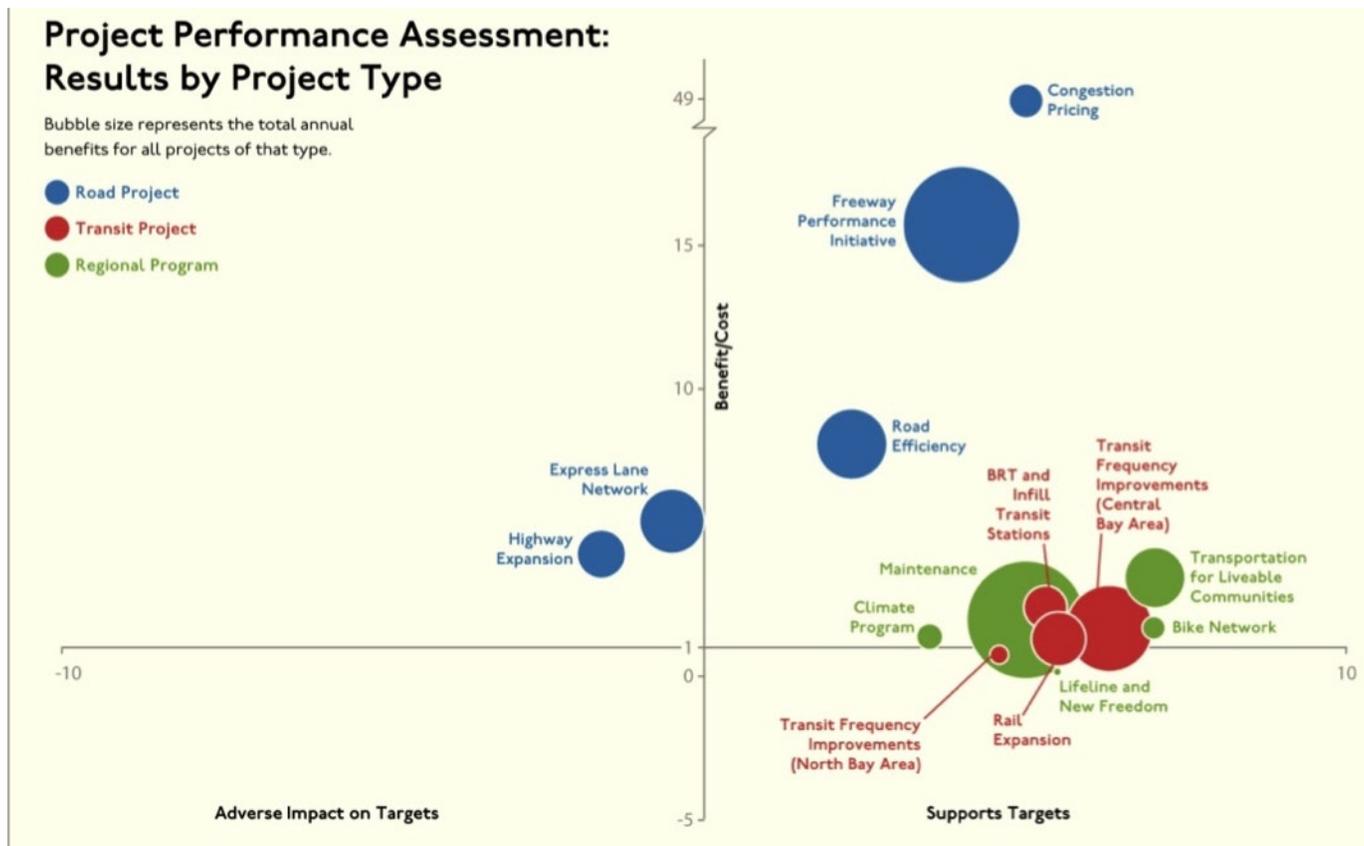
1 www.fhwa.dot.gov/planning/performance_based_planning/case_studies/san_francisco/

2 http://files.mtc.ca.gov/pdf/Plan_Bay_Area_FINAL/5-Performance.pdf

3 <http://onebayarea.org/regional-initiatives/plan-bay-area.html>

4 http://onebayarea.org/pdf/final_supplemental_reports/FINAL_PBA_Performance_Assessment_Report.pdf

7. Decrease share of low and lower-middle income residents' household transportation and housing expenditures by 10 percent.
8. Increase gross regional product by 110 percent (average annual rate of growth of 2 percent),
9. Decrease average trip travel time by 10% for non-auto modes; decrease car vehicle miles traveled per capita by 10 percent,
10. Maintain the transportation system in a state of good repair.



Source: MTC

Prioritizing funding for future projects in this way ensures that limited resources meet the performance targets that best address future regional goals. Through this new performance assessment framework each individual project is judged on its own merit with greater transparency and accountability. One of the true innovations in the MTC's process was to award flexible, federal transportation funding to the projects that performed the best as part of the evaluation process, while the ones that did not – even some of those with prior funding committed – were removed entirely from the plan.

This approach was supported by many stakeholders who were urging the MPO to use limited public funds to establish a level playing field to judge projects that best advanced economic, environmental and equity goals over the long term. Extensive public involvement through the process engendered broad political support from MPO board members and policymakers including the Association of Bay Area Governments, which has responsibility for broader regional planning. Through this approach, the MTC is prioritizing transportation investments that achieve multiple transportation, environmental, social and economic regional benefits.

Through Plan Bay Area and the changes made by the MTC to competitively allot funding for projects after all committed funding has been allocated, MTC is able to prioritize \$57 billion dollars in discretionary funds over the next 28 years,¹ which will allow them to accomplish their 30-year strategy through aligning transportation investment with housing investment in existing Bay Area communities.²

1 www.onebayarea.org/about/faq.html

2 http://files.mtc.ca.gov/pdf/Plan_Bay_Area_FINAL/4-Investments.pdf

Metropolitan Transportation Commission (MTC)	
Type	Functions as the MPO for the San Francisco Bay Area as well as functioning as the Bay Area Tolling Authority (BATA) and Service Authority for Freeways and Expressways (SAFE)
Composition	The MTC is comprised of 21 members, which are part of the Policy Board. Eighteen of the commissioners are designated as voting members. Sixteen of the voting commissioners are appointed by local officials in each county. The two most populous counties, Alameda and Santa Clara, each have 3 voting representatives. The county board of supervisors selects one member; the mayors of the cities within the county collectively appoint another; and the mayors of the biggest cities in these two counties – Oakland in Alameda County and San Jose in Santa Clara County – each appoint a representative. The City and County of San Francisco is represented by two members, one appointed by the board of supervisors and the other by the mayor. In addition, two voting members represent regional agencies – the Association of Bay Area Governments (ABAG) and the Bay Conservation and Development Commission (BCDC). San Mateo and Contra Costa counties have another two members and the less populous counties of Marin, Napa, Solano and Sonoma each appoint one commissioner.
Voting	Additional votes to certain jurisdictions: Each voting member has one vote, but certain jurisdictions have more representatives than others.
MPOs within MSA	MPO is in 4 MSAs
Annual budget and staffing size	\$88 million; 250 staff
Responsibilities beyond transportation	Land-use planning, sustainability planning (GHG emissions reduction initiatives)
Independent revenue authority	MTC finances and coordinates Bay Area transportation, such as BATA, but these functions are under the auspices of the MTC and no cross-subsidies exist.
State enabling legislation	The Sustainable Communities and Climate Protection Act, SB 375, mandates each of California's MPOs to prepare a Sustainable Communities Strategy (SCS), as a central part of its regional transportation plan (RTP). The SCS has land-use, housing and transportation strategies that once implemented would allow the region to meet its GHG emissions reduction targets. Once the RTP/SCS is adopted by the MPO, it guides the transportation policies and investments in the region.

References: www.mtc.ca.gov/about_mtc/about.htm
www.mtc.ca.gov/library/abcs_of_mtc/who_we_are.pdf
www.arb.ca.gov/cc/sb375/sb375.htm

CONSIDERING COMBINED HOUSING AND TRANSPORTATION COSTS

Thomas Jefferson Planning District Commission – TJPDC (Charlottesville, VA)

The college town of Charlottesville, Virginia, nestled in the Appalachian foothills, has appeared in recent years on lists of the most desirable cities in which to live. It has experienced significant growth and with it an increase in traffic congestion, property values and housing costs. The MPO for the Charlottesville area is the Charlottesville-Albemarle MPO and is housed in and staffed by the Thomas Jefferson Planning District Commission (TJPDC). The TJPDC and MPO have proactively gained valuable insight into the region's affordability picture and incorporated affordability metrics into their regional planning activities.

Charlottesville was selected as one of three regions for “field study” by HUD as part of a project to refine its location affordability index. HUD and TJPDC used the existing H+T Affordability Index developed by the Center for Neighborhood Technology to examine six different neighborhoods in the TJPDC jurisdiction. A report compared the relative costs associated with buying or renting a home along with predicted travel costs for that location based on job accessibility and other factors.¹ MPO board members noted that the analysis “showed that living further from the urban core might not be as cost-effective as people think,” and that foreclosure rates during the recent housing crisis were higher in suburban areas than in urban ones.²

In response, the TJPDC incorporated affordability location indicators as performance measures for regional transportation systems. A November 2013 Performance Measurement System Report identifies a framework for indicators of transportation system performance, including these five categories: community and neighborhoods, economy, housing and the built environment, natural resources and environment and transportation. At this point, the report simply provides a baseline analysis for regionally important indicators for livability, with the idea that performance in relation to these indicators will be considered in future transportation plans.³



4 | North Downtown

North Downtown is an historic neighborhood directly adjacent to downtown Charlottesville. The southern portion of the neighborhood is composed of a variety of civic uses, small parks, and multifamily housing. The northern part of the neighborhood is predominately single-family homes and churches. Park Street is the primary north-south route for the neighborhood.

Housing costs ...



Percent of regional typical household income expected to be spent on housing alone in the neighborhood.

Housing + Transport



Percent of regional typical household income expected to be spent on housing and transportation.

Snapshot from page 8 of www.tjpd.org/pdf/housing/HT_EducationalPacket.pdf

1 www.tjpd.org/pdf/housing/HT_EducationalPacket.pdf

2 http://tjpd.org/agendas_and_minutes/mpoPoli/12_03_28/Item_4.pdf

3 www.tjpd.org/livablecommunities/PerformMeasuresReport.pdf

Charlottesville-Albemarle MPO	
Type	MPO is housed in the Thomas Jefferson Planning District Commission
Composition	The five-member Policy Board is the decision-making body for the MPO, which consists of two representatives from the County of Albemarle and two representatives from the City of Charlottesville. The fifth representative is from the Virginia Department of Transportation. Additionally, there are non-voting members on the Board from the Virginia Department of Rail and Public Transportation, Charlottesville Area Transit, JAUNT, the University of Virginia, the Federal Highway Administration, Federal Aviation Administration, the Federal Transit Administration and Citizens Transportation Advisory Committee (CTAC).
Voting	One member, one vote
MPOs within MSA	1 MPO within MSA
Annual budget and staffing size	\$225,450; 3 full-time equivalent staff
Responsibilities beyond transportation	None
Independent revenue authority	None

References: www.tjpd.org/pdf/transportation/FINAL_UPWP%20FY15.pdf
www.tjpd.org/transportation/mpo.asp
www.ampo.org/wp-content/uploads/2014/02/2013-Salary-Survey-Results-final-draft-Jan-23-2.pdf

ADDRESSING REGIONAL DISPARITIES THROUGH OPPORTUNITY MAPPING

Houston-Galveston Area Council – H-GAC (Houston, TX)

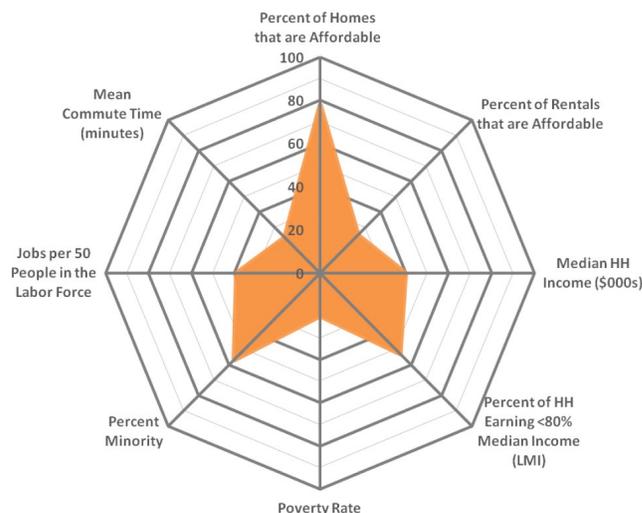
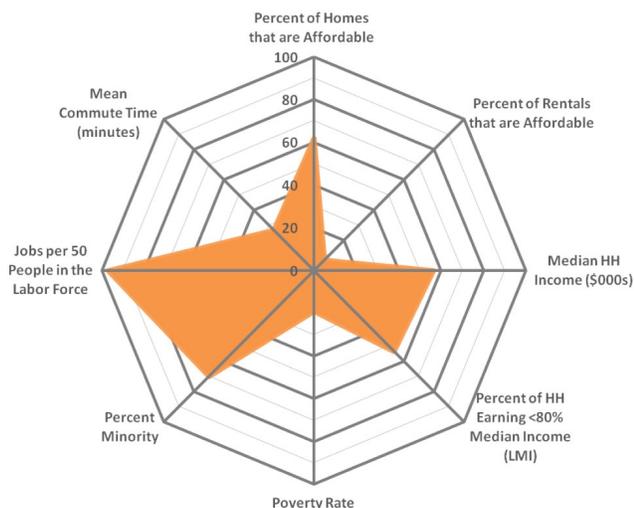
Long stereotyped for its sprawling land development patterns and massive road network, the Houston metro area is beginning to turn heads when it comes to regional livability and equity. In recent years, Houston area leaders including the Houston-Galveston Area Council (H-GAC) have brought a multitude of resources to bear on addressing regional challenges. This has included a stronger emphasis on how regional economic and racial disparities are impacted by transportation and housing investment decisions. Opportunity mapping has become an important tool in this work. At 12,500 square miles, the H-GAC service area is larger than 9 other states' total areas and poses a challenge for opportunity mapping, both in scale and in geographic and economic diversity.

H-GAC and its consortium partners received a 2010 HUD Sustainable Communities regional planning grant which required the region to undertake a Fair Housing and Equity Assessment (FHEA). This assessment is a form of opportunity mapping which identifies baseline conditions for fair housing, social equity and areas of opportunity across the region. The FHEA analysis is being used to inform the Regional Plan for Sustainable Development.

Opportunity Comparison Radial **Opportunity Comparison Radial**

What does the average Census tract in Houston look like?

What does the average Census tract in Wharton County look like?



Opportunity Comparison Radials from Houston and rural Wharton County. Source: www.ourregion.org/FHEA/FHEA-FINAL.pdf

In 2012 H-GAC hosted a Livability Summit to showcase how regional organizations are providing analysis and recommendations to address equity in transportation planning. The Texas Transportation Institute at Texas A&M University presented information on transit and livability in rural areas on the metropolitan edge,¹ along with guidance on using performance measures for livability and sustainability projects.² H-GAC’s work illustrates the potential for MPOs to play a critical role to address regional disparities through data, outreach and collaboration with regional and national partners. Going forward, the MPO will translate the conclusions from the FHEA process into the metropolitan transportation plan.

1 https://www.h-gac.com/community/qualityplaces/workshops/documents/pst-ws_08-22-2012_Connecting-Transit-and-Livability.pdf

2 https://www.h-gac.com/community/qualityplaces/workshops/documents/pst-ws_08-22-2012_Performance-Measures-for-Livability-and-Sustainability-Projects.pdf

Houston-Galveston Area Council (H-GAC)

Type	Regional Planning Commission, voluntary association of local governments
Composition	H-GAC serves as the regional planning entity for the 13-county Gulf Coast region. H-GAC hosts the MPO and associated Transportation Policy Council (TPC), the regional Workforce Board, the EDA-recognized Economic Development District and the Area Agency on Aging. The TPC serves as the MPO's Policy Board and has 28 voting members and two ex-officio members. Membership consists of chief elected officials and their designated alternates from the five major cities and 8 of the 13 counties that make up the council of governments. The Texas DOT and the Metropolitan Transit Authority of Harris County both have a representative on the TPC. Two positions are for smaller cities in Brazoria and Harris Counties and one for other transportation interests. Counties and cities not on the TPC are represented by members of the H-GAC Board of Directors. H-GAC is governed by a 36-member Board of Directors comprised of elected officials from across the region, including city council members, mayors, county commissioners, county judges and independent school district trustees.
Voting	The majority of members have one vote with the exception of the region's largest city (Houston) and county (Harris), which have two each. In order to hold votes a quorum must be present. A quorum requires a majority of membership present.
MPOs within MSA	1 MPO within MSA
Annual budget and staffing size	\$250 million; 246 staff
Responsibilities beyond transportation	9-1-1 services for outlying areas, area agency on aging, economic development, environmental planning, workforce development, cooperative purchasing, public safety training and planning, data services and air quality and land-use planning
Independent revenue authority	Does not have independent revenue authority, besides accepting local membership dues from local jurisdictions.
State enabling legislation	Under Ch. 391 of Texas Local Government Code, H-GAC shall function as a Regional Planning Commission and is able to exercise powers conferred on it by state law or by member local governments.

References: www.h-gac.com/taq/plans_programs/upwp/documents/Full2014-15UPWP-Apr2014Amendments.pdf;
www.h-gac.com/about/advisory-committees/documents/RAQPAC_Bylaws.pdf