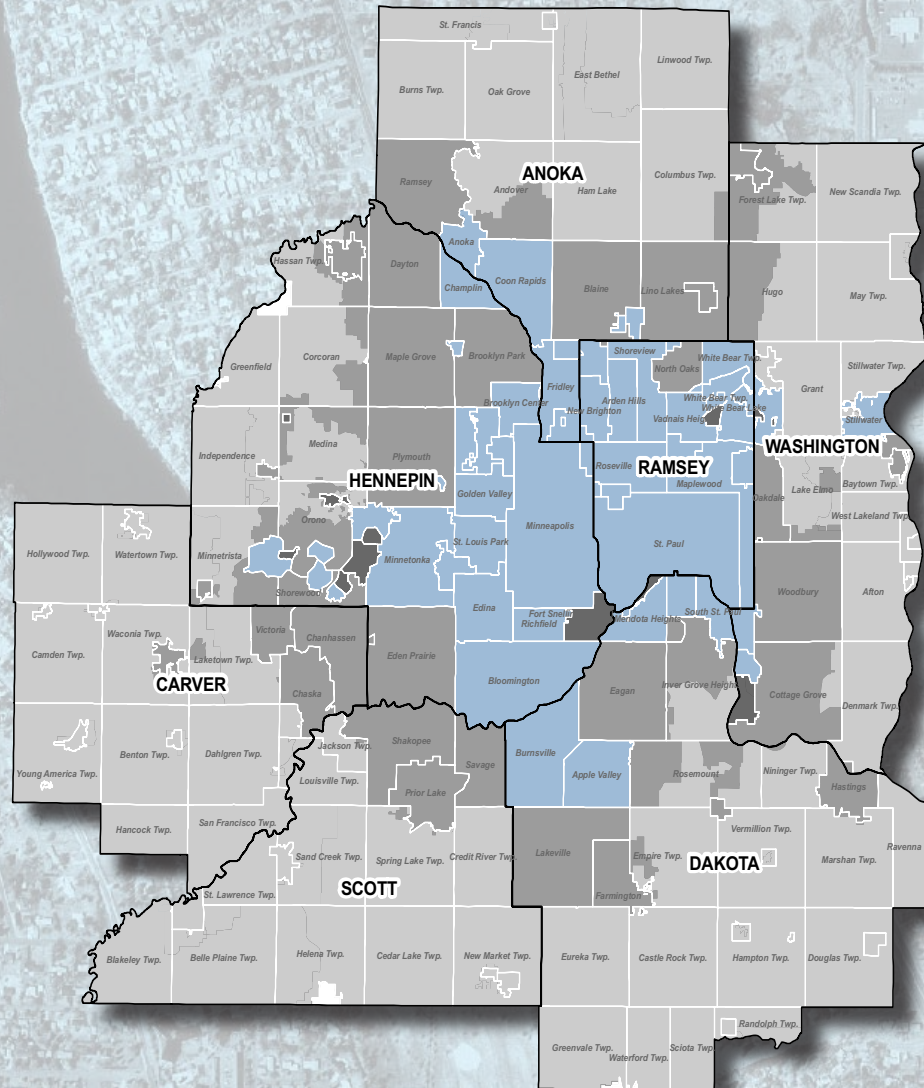


Healthy Planning:

A Review
of the
Seven
County
Metropolitan
Area
Developed
Community
Comprehensive
Plans



Minnesota Climate and Health Program
Minnesota Department of Health
Environmental Impacts Analysis Unit

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Patrick Boylan, Senior Planner, Metropolitan Council
Ann Beckman, Regional Growth Manager, Metropolitan Council

For more information contact:
Minnesota Climate and Health Program
Minnesota Department of Health
Environmental Impacts Analysis Unit
625 Robert Street North
PO Box 64975
St. Paul, MN 55164-0975
651-201-4893
health.climatechange@state.mn.us
<http://www.health.state.mn.us/divs/climatechange/>

Acknowledgments



March 2012



Executive Summary

Executive Summary

In 2010, the Minnesota Department of Health (MDH) received funds from the Centers for Disease Control and Prevention (CDC) to review the regional comprehensive planning process used for the Twin Cities metropolitan (metro) area. The purpose of the review was to determine if public health and climate change adaptation and mitigation are being addressed within the comprehensive plans (comp plans) for the seven-county metro area. Comp plans are one of the primary tools used by local governments to achieve their vision, regulate land uses and guide future investments over a specific period of time. Comp plans influence the design of communities, which can promote public health and healthy behavior. MDH reviewed 53 comp plans within the metro area to better understand the influence of comp plans on public health and climate change.

In Minnesota, State Statute 473.86-862 requires that each community in the seven-county metro area update their comp plan every ten years; the last update occurred in 2008. The seven-county metro area includes the counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington. State statute requires that each comp plan address several regional systems: transportation, aviation, water resources (including wastewater collection and treatment) and regional parks/open space. The Met Council reviews the comp plans to ensure that the components in the plans are compatible with regional systems and consistent with regional plans adopted by the Met Council.

The Met Council guides the comp plan process through its 2030 Regional Development Framework and supplemental policy plans, including the 2030 Transportation Policy Plan (2030 TPP), the 2030 Water Resources Management Policy Plan (2030 WRMPP), and the 2030 Regional Parks Policy Plan (2030 RPPP). Comp plans were not required to specifically address potential impacts to public health and climate change mitigation and adaptation efforts.

MDH staff evaluated 53 comp plans submitted by the “developed communities,” representing 56% of the seven-county metro area’s population. MDH assessed the developed communities’ comp plans because the selected public health indicators (a health indicator is used to measure or assess a particular health issue) and climate change indicators are more relevant to developed communities, and developed communities are more likely to have the resources to implement needed policies and strategies.

The 53 comp plans were assessed using eleven public health and climate change indicators that relate to the current regional comp plan requirements. The health indicators are below:

1. Does the land use plan support mixed-use development?
2. Does the plan achieve its regional affordable housing goal?
3. Does the plan address life-cycle housing?
4. Does the plan support complete street initiatives?

5. Does the plan support transit-oriented development?
6. Does the plan discuss pedestrian and bicycle safety?
7. Does the plan evaluate park needs of the population?
8. Does the plan address access to trails for residential areas?
9. Has the plan considered climate change?
10. Does the plan address targets or strategies for greenhouse gas reductions community-wide?
11. Does the plan address severe rain events or increased precipitation?

The review found that developed community comp plans vary considerably in addressing public health and climate change. Four health indicators (mixed use, affordable housing, life-cycle housing, and access to trails) were met by over 75% of the comp plans. Another four health indicators (complete streets, climate change, greenhouse gases, and severe rain events) were met by less than 30% of the comp plans. None of the comp plans addressed severe rain events, but the Met Council does plan for increased precipitation and climate change through the local water management plans that all cities and townships complete, as well as watershed plans, prepared by watershed management organizations. Neither the local water management plans nor the watershed plans were reviewed for this report. Thus, Health Indicator 11 does not recognize the extent of planning communities are doing related to water management and extreme precipitation. (See Table 1 for a summary of results from the health indicators.)

Six communities' comp plans met most of the health indicators (nine or more out of the 11): Bloomington, Burnsville, Edina, Minneapolis, St. Paul and White Bear Lake. For a detailed list of health indicators met by each communities' comp plan, see Appendix F. Had a different set of indicators been selected, other communities' comp plans may have scored better.

Overall, the comp plans could better address public health and climate change issues. Several recommendations were developed from the review of the health indicators. Recommendations can be found in

Table 1: Results from the Health Indicators		
Health Indicators	Yes	No
Health Indicator #1: Mixed Use	43	10
Health Indicator #2: Affordable Housing	53	0
Health Indicator #3: Life-Cycle Housing	45	8
Health Indicator #4: Complete Streets	8	45
Health Indicator #5: TOD	19	34
Health Indicator #6: Ped/Bike Safety	30	23
Health Indicator #7: Park Needs	31	22
Health Indicator #8: Access to Trails	41	12
Health Indicator #9: Climate Change	13	40
Health Indicator #10: Green House Gases	11	42
Health Indicator #11: Severe Rain Events	0	53
<i>*Yes = indicator met by comp plan</i>		
<i>*No = indicator not met by comp plan</i>		

the section, "Health indicators: findings & recommendations." For a summary of the recommendations, see the section, "Summary." The review also identified a number of policies/strategies that can be used by communities' to promote public health and climate change planning. The example policies/strategies can be found under the relevant health indicator.

This report provides a general overview of the developed communities' comp plans in meeting a specific set of health indicators. Hopefully, the assessment and recommendations prompt discussions about how the seven-county metro area communities and the Met Council can enhance their planning efforts to promote the health of Minnesotans.

Introduction & Methodology

Introduction & Methodology

In 2010, the Minnesota Department of Health (MDH) received funds from the Centers for Disease Control and Prevention (CDC) to review the regional comprehensive planning process used for the Twin Cities metropolitan (metro) area. The purpose of the review was to determine if public health and climate change adaptation and mitigation were being addressed within the comprehensive plans (comp plans). Comp plans are one of the primary tools used by local governments to achieve their vision, regulate land uses and guide future investments over a specific period of time. Comp plans influence the design of communities, which can promote public health and healthy behavior. MDH reviewed metro area comp plans to better understand the influence of comp plans' on public health and climate change and to make recommendations to the Metropolitan Council (Met Council) regarding addressing health and climate change in the comp planning process.

In Minnesota, State Statute 473.86-862 requires that each community in the seven-county metro area update their comp plan every ten years; the last update occurred in 2008. The seven-county metro area includes the counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington. State statute requires that each comp plan address several regional systems as guided by the Metropolitan Land Planning Act: transportation, aviation, water resources (including wastewater collection and treatment) and regional parks/open space. The Met Council guides the comp plan process through its 2030 Regional Development Framework and

Met Council's 2030 Regional Development Framework and policy plans.

The seven-county metro area comp plans must comply with Met Council's 2030 Regional Development Framework and policy plans. The framework and regional policy plans are intended to ensure the "orderly and economical development" of the seven-county metro area and the efficient use of the four regional systems: transportation, aviation, water resources and regional parks/open space. The Framework was adopted in January 2004 and amended in December 2006.

The policy plans defined by the Met Council are listed below:

The **2030 Transportation Policy Plan**, adopted in 2004 and amended in 2010, addresses the need to prepare for expected growth. Besides maintaining the road system, the region is challenged to develop a variety of transit options. For the first time, aviation is included in the transportation policy plan.

The **2030 Water Resources Management Policy Plan**, adopted in 2005 and amended in 2010, establishes policies to ensure the protection of water resources as the region continues to grow. It focuses on assessing the region's water supply, protecting surface water from pollution and ensuring that wastewater flowing into sewer systems is treated efficiently.

The **2030 Regional Parks Policy Plan**, adopted in 2005 and amended in 2010, recognizes the need to maintain and expand the open spaces that promote the quality of life in the region.

supplemental policy plans, including the 2030 Transportation Policy Plan (2030 TPP), the 2030 Water Resources Management Policy Plan (2030 WRMPP), and the 2030 Regional Parks Policy Plan (2030 RPPP). (See box: Met Council’s 2030 Regional Development Framework and policy plans.) The Met Council reviews the comp plans to ensure that the components in the plans are compatible with regional systems and consistent with regional plans adopted by the Met Council. Comp plans were not required to specifically address potential impacts to public health and and climate change mitigation and adaptation efforts.

The 189 comp plans from the seven-county metro area cover over half the state’s population. Communities and their corresponding comp plans are designated as ‘developed,’ ‘developing’ or ‘rural’ according to criteria set up by Met Council. See Appendix A for definitions of community designations. MDH assessed the comp plans of developed communities because the selected public health and climate change indicators are more relevant to developed communities, and developed communities are more likely to have the resources to implement needed policies and strategies.

There are 65 developed communities in the seven-county metro area.¹ Out of the 65 developed communities, MDH reviewed 53 comp plans. (See sidebar: Comprehensive Plans Reviewed.) A map locating the 53 communities within the seven-county metro area can be found in Appendix B. Plans not reviewed were dismissed for several reasons, including the plan’s availability for review, current adoption status (i.e., the plan hadn’t been adopted at the time of the review), and/or elements were missing from the comp plan that did not allow for a full review. The review took place between January and May 2011.

Table 2 describes the population, households and employment for the seven-county metro area and the developed communities from 2010 to 2030. In 2010, more than half of the seven-county metro area’s

**Comprehensive Plans Reviewed
Developed Communities**

- | | | | |
|-----|------------------|-----|---------------------|
| 1. | Anoka | 28. | Mendota Heights |
| 2. | Apple Valley | 29. | Minneapolis |
| 3. | Arden Hills | 30. | Minnetonka |
| 4. | Bloomington | 31. | Mound |
| 5. | Brooklyn Center | 32. | Mounds View |
| 6. | Burnsville | 33. | New Brighton |
| 7. | Champlin | 34. | New Hope |
| 8. | Circle Pines | 35. | Newport |
| 9. | Columbia Heights | 36. | North St. Paul |
| 10. | Coon Rapids | 37. | Osseo |
| 11. | Crystal | 38. | Richfield |
| 12. | Edina | 39. | Robbinsdale |
| 13. | Excelsior | 40. | Roseville |
| 14. | Falcon Heights | 41. | St. Louis Park |
| 15. | Fridley | 42. | St. Paul |
| 16. | Golden Valley | 43. | St. Paul Park |
| 17. | Greenwood | 44. | Shoreview |
| 18. | Hopkins | 45. | Spring Lake Park |
| 19. | Landfall | 46. | Spring Park |
| 20. | Lauderdale | 47. | Stillwater |
| 21. | Lilydale | 48. | Tonka Bay |
| 22. | Little Canada | 49. | Vadnais Heights |
| 23. | Long Lake | 50. | Wayzata |
| 24. | Loretto | 51. | White Bear Township |
| 25. | Mahtomedi | 52. | White Bear Lake |
| 26. | Maplewood | 53. | Woodland |
| 27. | Mendota | | |

¹ Metropolitan Council (2006), “2030 Regional Development Framework,” Accessed online October 2011: <http://www.metrocouncil.org/planning/framework/Framework.pdf>.

Table 2. Seven-County Metropolitan Area Demographic Data for the Years 2010, 2020, and 2030

Source: Metropolitan Council

Population			
	2010 ¹	2020 ²	2030 ³
Regional Population Forecasts	2,849,745	3,334,000	3,608,000
Population Forecasts for Developed Communities (DC)	1,666,803	1,850,685	1,907,780
Percent of the Region's Population in DC	58%	56%	53%
The HIA included 53 of the Developed Communities.			
Population Forecasts for the 53 DC	1,609,613	1,788,270	1,843,980
Percent of the Region's Population in the 53 DC included in this HIA.	56%	54%	51%
Households			
	2010*	2020+	2030+
Regional Household Forecasts	1,117,749	1,362,000	1,492,000
Household Forecasts for Developed Communities (DC)	688,790	776,535	810,315
Percent of the Region's Households in DC	62%	57%	54%
The HIA included 53 of the Developed Communities.			
Household Forecasts for the 53 DC	664,503	749,335	782,335
Percent of the Region's Households in the 53 DC included in this HIA.	59%	55%	52%
Employment			
	2010*	2020+	2030+
Regional Employment Forecasts	1,543,459	1,990,000	2,216,000
Employment Forecasts for Developed Communities (DC)	1,097,496	1,395,590	1,469,850
Percent of Region's Employment in DC	71%	70%	69%
The HIA included 53 of the Developed Communities.			
Employment Forecasts for the 53 DC	1,052,960	1,329,710	1,401,460
Percent of the Region's Employment in the 53 DC included in this HIA.	68%	67%	66%

1 2010 data are total counts from the 2010 Census

population (58%), households (62%), and jobs (71%) were located in the developed communities.

Over the next twenty years the developed communities will continue to grow in population, households and employment; however, the developing and rural communities will start absorbing a larger share of the region's growth. In 2030, the total population for the seven-county metro area will exceed 3.6 million. The developed communities are projected to represent more than half of the region's population (53%), households (54%) and jobs (69%).

Table 2 also shows the percent of the population covered by the 53 developed community comp plans reviewed compared to all the developed communities in the seven-county metro area. In 2010, the 53 developed communities contained 56% of the seven-county metro area's population. Only 2% of the developed communities' population was not covered by the comp plan review.

MDH staff developed a set of health indicators (a health indicator is used to measure or assess a particular health issue) to evaluate each of the developed communities' comp plans for policies/strategies that influence public health and climate change adaptation and/or mitigation. MDH chose and modified health indicators from two existing tools: 1) the Design for Health's *Comprehensive Plan Review Checklist, 2007*, and 2) the San Francisco Department of Health's *Healthy Development Measurement Tool Development Checklist, Version 3.02*. Research on the health indicators was based primarily on best practices and a review of available scientific literature that was corollary in nature. Correlation research provides evidence of an association, but cannot prove causation. This report reflects the

2 2020 and 2030 data are forecasts made by the Met Council. See here for methodology: <http://stats.metc.state.mn.us/stats/forecastmethodology.aspx>

3 2010 data are DEED's annual employment figures from the Quarterly Census of Employment and Wages (QCEW) for all industries:

<http://www.positivelyminnesota.com/apps/lmi/qcew/AreaSel.aspx>

best information to date on the health indicators.

MDH modified many of the indicators so that they would be applicable to the regional planning process used by the Met Council. Usually this involved making the indicator less specific, so that many types of policies could be acceptable to meet the indicator. The final list of 24 health indicators included many topics relevant to health, such as climate change, housing affordability, complete streets, access to healthy foods and transit-oriented development. A complete list of health indicators can be found in Appendix C, the health indicator tracking tool.

This report reviews 11 of the 24 health indicators that relate to current regional comprehensive planning requirements:

1. Does the land use plan support mixed-use development?
2. Does the plan achieve its regional affordable housing goal?
3. Does the plan address life-cycle housing?
4. Does the plan support complete street initiatives?
5. Does the plan support transit-oriented development?
6. Does the plan discuss pedestrian and bicycle safety?
7. Does the plan evaluate park needs of the population?
8. Does the plan address access to trails for residential areas?
9. Has the plan considered climate change?
10. Does the plan address targets or strategies for greenhouse gas reductions community-wide?
11. Does the plan address severe rain events or increased precipitation?

These 11 health indicators provide a broad overview of health and climate change issues that could be addressed within a comp plan. The health indicators do not represent all the public health and climate change issues associated with the built environment and comprehensive planning. The other 13 health indicators were not included in this report because they are more likely to be addressed by local government initiatives. For example, two of the 13 health

indicators address access to locally produced or healthy food, services that the Met Council does not provide. Initiatives like these are locally driven and will be discussed in a separate report on local planning strategies for public health and climate change.

MDH staff used the list of 11 health indicators to evaluate each plan. MDH found that because of the broad, regional nature of the comp plans, each health indicator may be addressed in different ways. For instance, two communities may recognize climate change in their comp plans, but one community may include a number of policy statements related to climate change, while another community may only reference climate change as a potential issue for planning. The former response to climate change planning is more specific, but both recognized climate change as an issue. To help quantify the results, MDH classified the variation in comp plan responses according to the following three categories:

Response 1: Implementation – The indicator was effectively addressed through an existing program, plan, resolution or regulatory tool.

Response 2: Guidance – The indicator was effectively addressed through a policy statement, goal or strategy.

Response 3: Language – The indicator was recognized, but no formal guidance was provided on how to effectively address the indicator.

The 53 comp plans were reviewed by one MDH staff person who determined the level of response for each health indicator. This staff person had extensive experience in preparing and evaluating comp plans and the community planning process used by the Met Council. However, because only one person reviewed the comp plans it is possible that if another person had reviewed the comp plans the responses may have been classified differently. Although the response categories were developed to be discrete, classification of the language in the comp plans was difficult and somewhat subjective.

The review of the comp plans was based on information found within the text of the comp plans. In general, supplementary documents or plans to the comp plans were not reviewed. Any exceptions are stated within the description of the health indicator. It is possible that some of the communities' comp plans may have met more of the health indicators or met a higher level of the indicator had the supplementary documents been reviewed.

Because communities have unique strengths, needs, and resources, a comparison of communities based on the findings in this report is not recommended. Additionally, the review is not meant to single out certain communities regarding planning for public health and climate change. The health indicators and corresponding recommendations provide a starting point for addressing some public health and climate change issues and do not assess all public health and climate change issues related to comp planning.

The review's purpose is to help the seven-county metro area and Met Council plan for health and climate change. The next section of the report describes the health indicators, findings and recommendations.

Health Indicators: Findings & Recommendations

Health Indicator 1: Does the land use plan support mixed-use development?

Health Importance

Mixed-use development can be defined as residential uses integrated with commercial development. If implemented properly, mixed-use development can promote affordability; housing options for different lifestyles; efficient use of infrastructure; and population thresholds for transit and supportive services, which can lead to increased walking and reduced urban sprawl.^{1,2,3} One study found that the opportunities for walking in mixed-use developments are able to meet the same weight-loss objectives as structured aerobic exercise.⁴ Improving land use from 100% residential to a 25% non-residential land use mix can reduce the likelihood of obesity by 6.85%.⁵ Also, mixed-use

developments can build a stronger sense of place, social cohesion and social capital.^{6,7}

Mixed-use development is a key component in Livable Communities (See Health Indicator 2), New Urbanism, Traditional Neighborhood Development (TDM), and Transit-Oriented Development (TOD) (See Health Indicator 5). The underlying theme to each of these types of development is using mixed-use development and density to create a more compact, sustainable development.

Defining the Indicator

Health Indicator 1 determined the number of plans that integrated residential uses with other uses. MDH counted the comp plans that used “mixed use” as a land use category. Each plan’s definition of mixed use varied and included different density ranges, scales and uses. Regardless of the definition, the health indicator was met if the plan supported mixed uses that included some form of residential use.

Comprehensive Plan Review Findings

Forty-three of the communities included mixed use in their comp plan. Brooklyn Center was the only community that listed mixed-use development as a specific percent of the community’s future land uses, but did not include designated mixed-use zoned

1 Frank, Lawrence D (2006), “Many Pathways from Land Use to Health,” Journal of the American Planning Association, Volume 72, Number 1.

2 Schweitzer, Lisa and Jiangping Zhou (2010), “Neighborhood Air Quality, Respiratory Health, and Vulnerable Populations in Compact and Sprawled Regions,” Journal of the American Planning Association, Volume 76, Number 3, 363-371.

3 Design for Health (DFH) (2008), “Key Question Research Summaries,” Accessed online July 2011, <http://www.designforhealth.net/resources/researchsummaries.html>.

4 Jackson, LE, (2003), “The relationship of urban design to human health and condition,” Landscape and Urban Planning, 64: 191- 200.

5 Frank, L et al. (2004), “Obesity Relationships with Community Design, Physical Activity, and Time Spent in Cars,” American Journal of Preventative Medicine, Volume 27, Number 2: 87-96.

6 Leyden, Kevin M (2003), “Social Capital and the Built Environment: The Importance of Walkable Neighborhoods,” American Journal of Public Health, Vol. 93, No. 9 (www.ajph.org), September, pp. 1546-1551.

7 Litman, Todd (2010), “Community Cohesion As A Transportation Planning Objective,” Victoria Transportation Policy Institute, Accessed online September 30, 2011, <http://www.vtppi.org/cohesion.pdf>.

Health Indicator 1: Mixed-use development

land on its future land use map. Because of this inconsistency Brooklyn Center was the only community that met the indicator, but received “Response 2: Guidance” instead of “Response 1: Implementation.”

In most cases, the communities that did not support mixed use were small in geographical area (e.g., Excelsior, Greenwood, Spring Lake Park, Tonka Bay, Landfall and Woodland) and had little or no opportunity for redevelopment. For instance, Landfall is 53 acres in size and consists primarily of single-family homes, posing challenges for redevelopment opportunities. The remaining communities that did not support mixed use as a future land use category included the following: Crystal, North St. Paul, Vadnais Heights and White Bear Township.

Recommendations

The comp plans are not required to support any specific type of land use pattern. Instead, each comp plan must provide a land use plan that accommodates growth forecasts by allocating land at appropriate densities. The 2030 Regional Development Framework (2030 RDF) and policy documents provide a number of policy statements that support land use planning that connects housing with jobs and maximizes regional investments. Mixed-use developments can achieve both of these objectives and provide additional health benefits including reducing motorized transportation and increasing physical activity. The 2030 RDF and policy documents provide the foundation necessary to promote mixed-use developments. Therefore, there are no additional recommendations from this review.

Health Indicator 2: Does the plan achieve its regional affordable housing goal?

Health Importance

Affordable and varied housing options are important components of a community's housing stock. Housing options should meet the needs of its community members, based on age, lifestyle and income level. By providing a range of housing types at mixed levels of affordability, all members of a community have the opportunity to experience housing security.

Housing security strengthens communities and helps promote relationships with neighbors by encouraging longer-term residents to invest in all facets of their neighborhood.¹ Additionally, dispersing affordable housing throughout the community can help foster relationships between different social groups.² Diverse relationships build social capital and social cohesion. Conversely, living in a community with high concentrations of affordable housing can cluster poverty, which in turn may lower social capital and create unsafe neighborhoods.³ Negative perceptions of affordable

housing have posed a number of challenges to implementing affordable housing projects within higher income neighborhoods. To prevent concentrated poverty, all neighborhoods should provide a mix of affordability levels and housing options (i.e., rental and ownership). The exact mix of affordable housing will vary by location, but should reflect the demand for affordable units and be reasonably distributed among all neighborhoods.

Affordable housing is a fundamental component of the comp plans. By law (State Statute 473.859 Subd. 2(c)), each plan must recognize their share of the region's affordable housing needs and include an implementation section. The statute reads:

"A land use plan shall also include a housing element containing standards, plans and programs for providing adequate housing opportunities to meet existing and projected local and regional housing needs, including but not limited to the use of official controls and land use planning to promote the availability of land for the development of low and moderate income housing."

According to the Local Planning Handbook,⁴ the housing chapter must acknowledge the community's share of the region's need for low- and moderate-income housing (affordable housing) and include an implementation section. Allocating the region's share of affordable housing needs is based on

1 Rohe, W, Van Zandt S & McCarthy G (2001), "The Social Benefits and Costs of Homeownership: A Critical Assessment of the Research," Cambridge, MA: Harvard University, Joint Center for Housing Studies.

2 Joseph, Mark (2006), "Is Mixed-Income Development an Antidote to Urban Poverty?," 17 Housing Policy Debate 209, 213-216, Available online at <http://content.knowledgeplex.org/kp2/cache/documents/2054/205411.pdf>.

3 Anderson, Laurie, et al. (2003), "Providing Affordable Family Housing and Reducing Residential Segregation by Income," American Journal of Preventative Medicine, Volume 24, Number 3S: 47-58.

4 Met Council (2008), "Local Planning Handbook," Accessed online June 2011: <http://www.metrocouncil.org/planning/LPH/handbook.htm>

Affordable Housing

The Metropolitan Council has established a number of benchmarks and goals for the region to meet its affordable housing needs. The Metropolitan Council describes affordable housing as the following:

- Affordable housing is essential for stable families, vibrant neighborhoods, a strong economy and a healthy region. Housing is affordable when a family with a moderate or low income pays no more than 30-40% of its monthly income for housing.
- Increasingly, housing is not affordable for many Twin Cities area working families. This lack of affordable housing for people of all ages and incomes causes families stress, dampens productivity and stifles job growth.
- The Metropolitan Council recognizes that durable and well-maintained housing is important to a community's tax base, livability and business climate, as well as to the health of the region as a whole. The Council creates affordable housing opportunities in the region through several programs and initiatives.

Source: Metropolitan Council's Affordable Housing Fact Sheet, January 2011.

a methodology described in the report titled "Determining Affordable Housing Need in the Twin Cities, 2011 – 2020,"⁵ published in January 2006. The report describes the affordable housing goal and the number of units each community needs to provide by the year 2020.

Defining the Indicator

Health Indicator 2 was met if the comp plan described how the community would achieve its affordable housing goal and number of units.

Comprehensive Plan Review Findings

All of the communities recognized their share of the region's affordable housing needs. Affordable housing discussions typically occurred as part of the community's existing conditions or community context reports. The Land Use and Housing Chapters provided specific details in meeting the region's affordable housing goals. In most cases, the goal was recognized through a policy statement that addressed redevelopment initiatives. However, many of the plans lacked guidance on where those redevelopment opportunities may occur and how they would accommodate affordable housing. The lack of specific information may be a response to market uncertainties, making it difficult to determine the exact location and number of new housing units.

Five communities (i.e., Brooklyn Center, Champlin, Coon Rapids, Shoreview and Lilydale) linked their housing goal to specific (re)development opportunities by assessing density ranges and developable land, which was a strong approach to meeting their affordable housing goals. A number of communities, like Richfield, conducted a similar type of analysis, but did not document it in the comp plan. Only analyses in the comp plans were reviewed.

Communities also discussed affordable housing through their participation in the Livable Communities Program. Appendix D depicts the number of

⁵ Met Council (2006), "Summary Report: Determining Affordable Housing Need in the Twin Cities 2011 – 2020," Accessed online August 2011: <http://www.metrocouncil.org/planning/Housing/AffHousingNeedJan06.pdf>

Examples

Champlin:

With the 2008 Comprehensive Plan update, the City must identify medium and high-density residential sites supporting 179 affordable housing units by the year 2020. There are four sites that the city identified with enough allowable density and acreage to accommodate the projected affordable housing need, as well as one site that could potentially be guided for medium- or high-density residential land use.

Source: Champlin 2008 Comprehensive Plan update, available online: <http://ci.champlin.mn.us/2030ComprehensivePlan.html>

Lilydale:

“The Metropolitan Council has identified new affordable housing needs for all cities and townships within the Twin Cities Metropolitan Area based on a standard formula. According to the standard formula, the City’s plan should provide the opportunity to accommodate 28 units of affordable between the years 2011 and 2020. The City recognizes this need and the pending Tennis Club redevelopment project provides an opportunity of fulfilling the need since the density of the preliminary approved plan is more than 8 units per acre.”

Source: Lilydale Comprehensive Plan, available online: <http://lilydale.govoffice.com/vertical/Sites/%7BB50F2735-61FC-4A0D-BAE7-E8D4776BEE77%7D/uploads/%7B93027462-10F4-42EB-AD30-A6034B83DE41%7D.PDF>

developed communities who participate in this voluntary program. The Livable Communities Program is administered by the Met Council and participants agree to work towards their share of the region’s affordable housing needs. Burnsville, Edina, New Brighton, Robbinsdale, Shoreview, Stillwater, Vadnais Heights, Wayzata and White Bear Lake recognized their participation in the program as it relates to affordable housing needs.

Health Indicator 2 was difficult to assess, considering the varying responses. Most comp plans included policy statements in favor of affordable housing. However, very few comp plans provided clear implementation strategies. Comp plans that identified (re)development opportunities provided the strongest support for achieving their share of the region’s affordable housing needs. None of the comp plans clearly made a connection between affordable housing, social capital and social cohesion.

Recommendations

The comp plans recognized their share of the region’s affordable housing needs, but additional requirements in the statute were not met. The comp plans need to provide implementation language that specifically describes how they will achieve their affordable housing numbers. The comp plans should address official controls, programs and plans to promote the availability of land for affordable housing needs.

To help comp plans meet the statute requirements, MDH encourages the Met Council to provide additional guidance on how future comp plans can strengthen their housing chapters to include stronger implementation sections. Comp plans from Brooklyn Center, Champlin, Coon Rapids, Shoreview and Lilydale may serve as models for describing implementation measures.

The comp plans did not recognize the health and social benefits of integrating affordable housing into mixed and upper income neighborhoods. MDH also encourages drawing a direct connection between social benefits and affordable housing as part of future comp plan updates.

Health Indicator 3: Life-cycle housing

Health Indicator 3: Does the plan address life-cycle housing?

Health Importance

Life-cycle housing incorporates a variety of housing types that allows people to age in place and to select housing that meets their changing lifestyles' needs and abilities. Life-cycle housing options include affordable homes for different income levels, rental units, senior housing, assisted living, mixed-use developments and single-family dwellings. The types of life cycle housing offered within a community will vary depending on the demographics of the community.

Life-cycle housing is important in Minnesota because the population is aging, and as a result housing needs are changing. According to the Minnesota State Demographer, the Baby Boom generation (people born between 1946 and 1964) will cause the number of people age 65 and older to more than double, from 683,121 (12.9% of the population) in 2010¹ to 1,400,000 (21.7% of the population) in 2035.² The aging population may wish to “downsize” or stay where they live as they age. Empty-nesters are showing a preference for smaller units. The elderly population is less mobile and may benefit from living closer to services. In addition to meeting

1 Missouri Census Data Center (2011), “Age cohorts by Minnesota County,” Minnesota Department of Administration. Geographic and Demographic Analysis Division. Accessed online: <http://www.demography.state.mn.us/resource.html?id=32077>

2 McMurry, Martha (2007) “Minnesota Population Projections 2005-2035,” Minnesota State Demographic Center. Accessed online: <http://www.demography.state.mn.us/documents/MinnesotaPopulationProjections20052035.pdf>

the needs of the aging population, cities want to attract and retain younger households to maintain or grow their population. Life-cycle housing can support the needs of current residents, attract new residents and serve as a mechanism to enhance relationships between different age groups, lifestyles and income levels.³

Defining the Indicator

The health indicator was met if the plan addressed “life-cycle” housing.

Comprehensive Plan Review Findings

Forty-five comp plans used the term “life-cycle” housing. Generally, life-cycle housing was defined as housing stock that accommodates a variety of lifestyles, age groups and income levels. Of the 45 comp plans that met the indicator, six provided specific plans or implementation strategies and 33 included a policy statement that encouraged and supported life-cycle housing options. The remaining six plans alluded to the importance of life-cycle housing, but did not include a policy statement.

The City of Shoreview included a section within their housing plan on “changing demographics,” noting that the population aged 65 and older was projected to grow from 12.6% of the population (2006 estimate) to 36% of the population by 2020. See the call-out box on the next page for selected text from the Shoreview Comprehensive Plan.

3 Turner, John FC (1976), *Housing By People: Towards Autonomy in Building Environments*. New York: Pantheon Books.

Shoreview Comprehensive Plan
Life-cycle housing example

The Shoreview Comprehensive Plan included a section within their housing plan on “changing demographics.” The section included the following language:

“When considering housing policies and strategies, the City must take into consideration the shifting demographics and changing needs of our residents. The residential development pattern primarily consists of detached single-family homes, which have been generally designed to meet the needs of young families. Additional housing opportunities must be provided to address the needs of our aging population while attracting and retaining younger households. Life-cycle housing policies support the construction of rental and owner-occupied units that are affordable to low and median income buyers and also for the move-up buyer. These policies also support a variety of housing styles, types and densities that provide housing options for individuals as they move through different stages in life.”

Source: Shoreview Comprehensive Plan, available online: <http://www.shoreviewmn.gov/resources/comprehensive-plan>

Recommendations

The majority of comp plans supported life-cycle housing through various policy statements, but very few plans articulated how they would implement life-cycle housing or whether the plans were considering housing needs based on specific demographic changes. The comp plans should be discussing housing needs for the aging population and other relevant age groups and lifestyles. The 2030 RDF emphasizes the importance of responding to housing needs based on demographic trends and provides some strategies (see Policy 3: Encourage Expanded Choices in Housing Location and Types, and Improved Access to Jobs and Opportunities). MDH encourages the Met Council to consider providing additional strategies and implementation measures to ensure that the comp plans are meeting future housing needs for their populations’ demographics.

Health Indicator 4: Complete-streets

Health Indicator 4: Does the plan support complete street initiatives?

Health Importance

In 2010, the Minnesota legislature passed the complete streets law that provides design flexibility for state-aid roadway projects to accommodate non-motorized uses. The law defines complete streets as the following:

“Complete streets’ is the planning, scoping, design, implementation, operation, and maintenance of roads in order to reasonably address the safety and accessibility needs of users of all ages and abilities. Complete streets considers the needs of motorists, pedestrians, transit users and vehicles, bicyclists, and commercial and emergency vehicles moving along and across roads, intersections, and crossings in a manner that is sensitive to the local context and recognizes that the needs vary in urban, suburban, and rural settings.”

Complete streets focus on designing roads for all users, including those using non-motorized transportation. Complete streets encourage biking, walking and use of public transportation, which increase physical activity, decrease pollution and improve health. Benefits associated with increased physical activity include reduction in heart disease, diabetes and other chronic diseases.

Twenty-six communities in Minnesota have officially adopted local complete streets policies or resolutions. Of the 26, six communities are

developed communities in the seven-county metro area: Bloomington, Hennepin County, St. Paul, St. Louis Park, North St. Paul, and New Hope.

Defining the Indicator

Health Indicator 4 was met if the plan directly referenced the term “complete streets.”

Comprehensive Plan Review Findings

The following eight communities recognized complete streets in their comp plans: Bloomington, Edina, Richfield, St. Paul, Shoreview, Stillwater, St. Louis Park, and Vadnais Heights. Language from each of these eight comp plans addressing complete streets follows below.

Bloomington

In addition to having a complete streets policy, Bloomington’s comprehensive plan provides a series of strategies to help implement complete streets.

Goal 1: Create a sustainable, multi-modal transportation system focused on mobility and community renewal.

Strategy 1.1: Improve the existing pedestrian and cycle infrastructure.

Consider all users and modes, including pedestrians, cyclists, motorists and transit users, when planning and designing transportation systems and reviewing development proposals with the intent of creating a “Complete Streets” transportation system.”

Edina

The plan strongly recommends adopting and implementing a “complete streets” design policy and approach that considers the needs of all present and potential transportation network users, including cyclists, pedestrians, seniors, children, people with mobility limitations, and motorists when designing improvements to Edina’s street network.

Richfield

Richfield included the following statement in their planning framework, based on comments received during the initial stakeholder involvement process for the Comprehensive Plan update:

“Richfield should establish a hierarchy of streets with those of primary importance being designated and designed as “complete streets”. Complete streets are those that by design, accommodate the needs of pedestrians and bicyclists in addition to vehicles. Complete streets also include enhanced landscaping.”

St. Paul

The plan provides a series of strategies to help implement its complete streets policy.

Shoreview

The plan provides a policy to consider incorporating complete street practices into road projects when street improvements are proposed and such practices are feasible. Complete streets are designed and operated to provide safe access for all users.

Stillwater

The plan recognizes the opportunity and benefits of complete streets.

St. Louis Park

The plan provides a series of strategies to help implement its complete streets policy.

Vadnais Heights

The plan advocates for a “complete streets” design for all Ramsey County Roads and the major collectors at the City level.

The policy statements and strategies in the eight comprehensive plans that related to complete streets included multimodal transportation options, access for all users, pedestrian safety and sustainable street design measures.

Recommendations

The 2030 TPP recognizes the importance of complete streets and is a strategy under Policy 18: Providing Pedestrian and Bicycle Travel Systems.

“Strategy 18e. Complete Streets: Local and state agencies should implement a multimodal roadway system and should explicitly consider providing facilities for pedestrians and bicyclists in the design and planning stage of principal or minor arterial road construction and reconstruction projects with special emphasis placed on travel barrier removal and safety for bicyclists and pedestrians in the travel corridor.”

A number of communities have begun to adopt their own complete streets policies. MDH encourages the Met Council to integrate the State’s Complete Streets Policy into future policy plans and planning requirements. Also, local jurisdictions should be encouraged to adopt a complete streets policy that applies to their roadways.

Health Indicator 5: Transit-oriented development

Health Indicator 5: Does the plan support transit-oriented development?

Health Importance

Transit-oriented development (TOD) is a form of mixed-use development that is designed around public transportation. TOD includes transit infrastructure, compact housing and commercial development. Quality pedestrian and bicycle-friendly infrastructure and services found within a TOD encourage local residents to take non-motorized trips. Taking non-motorized trips promotes fitness and improves air quality.

A 2010 American Public Transportation Association report found significant health benefits related to TOD and walkable communities. The report also found that users of public transportation walk more than those who do not use public transit, regardless of income, and consequently tend to be healthier. Benefits of increased activity by walking, bicycling or transit ridership include better physical and mental health, reduced vehicular accidents and injuries, and lower air pollution levels.

The Local Planning Handbook recognizes the importance of linking mixed uses with transportation, especially near high-level transit services, such as transit hubs, transportation corridors and rail stations. TOD may be difficult to achieve in some communities that are not supported by regular transit routes nor located along major transportation corridors (i.e., “transitways”) that would support such development.

The 2030 Transportation Policy Plan has prioritized a series of transitways within the seven-county metro area (see Appendix E). The transitways vary in use (e.g., Bus

Transit-Oriented Development

Transit-Oriented Development (TOD) - compact, mixed-use development within walking distance of public transportation - is a key element of livable and sustainable communities. TOD creates communities where people of all ages and incomes have access to transportation and housing choices by increasing location efficiency and allowing people to walk, bike and take transit for their daily trips. TOD is attractive to its residents because it fosters a convenient and affordable lifestyle where housing, jobs, restaurants, and entertainment are all in convenient proximity. In addition, TOD increases transit ridership and reduces automobile congestion, providing value for both the public and private sectors.

Source: Federal Transit Administration (FTA), “Transit-Oriented Development,” Available online: http://www.fta.dot.gov/about_FTA_6932.html

Rapid Transit, Light Rail Transit and High Occupancy Vehicle lanes) and priority for the region. Forty of the developed communities reviewed in this HIA are located along a proposed 2030 Transitway.

Defining the Indicator

Health Indicator 5 was achieved by comp plans that recognized the term “transit-oriented development” or “TOD”.

Comprehensive Plan Review Findings

Only 19 of the 53 plans MDH reviewed included TOD as a land use/ transportation strategy. Four of the plans provided implementation measures: Anoka, Columbia Heights, Burnsville and White Bear Lake. Anoka and Columbia Heights included TOD as a future land use category. Burnsville and White Bear Lake provided implementation measures to incorporate TOD into their zoning districts. Twelve of the plans provided policy direction, and the remaining three briefly talked about the benefits of TOD. The Anoka comprehensive plan provided model TOD language. (See page 23 - Anoka Comprehensive Plan: TOD.)

Recommendations

The 2030 TPP does not specifically recognize TOD as a policy or strategy. However, the 2030 TPP does provide a series of policy statements and strategies that encourage land-use patterns to develop in conjunction with multimodal transportation options. For example, Policy 4: Coordination of Transportation Investments and Land Use, Strategy 4c, encourages the coordination between transportation investments and land development along major transportation corridors that intensifies job centers; increases transportation links between job centers and medium-to-high density residential development; and improves jobs/housing connections.

Future comp plan updates should recognize the transitways if they fall within their respected communities and consider TOD as a strategy to align Met Council’s goals in connecting land uses with multimodal transportation networks, especially along existing or planned transitways.

Anoka Comprehensive Plan: TOD

The City of Anoka is continuing the trend of locating large trip generating land uses in corridors that can adequately accommodate the traffic it generates. Anoka's plans to redevelop the area around the Northstar Commuter Rail Station call for a mix of land uses, including Transit Oriented Development (TOD), residential and commercial (see Commuter Rail Transit Village Future Land Use Concept).

Anoka Comprehensive Plan Zoning Districts—Transit Oriented Development

The purpose of the Transit Oriented Development (TOD) land use category is to encourage a mixture of residential, commercial and civic uses in proximity to the commuter rail station at densities and intensities that support and increase transit use. Development in the TOD District should:

- Encourage a safe and pleasant pedestrian environment near the rail station and to limit conflicts between pedestrians and vehicles.
- Maximize access to transit.
- Encourage use of transit infrastructure.
- Provide parking in an unobtrusive manner.
- Reduce parking requirements by encouraging shared parking and alternative modes of transportation.
- Encourage a sense of activity and liveliness along the street level of building facades.

Type of Development—The following uses are appropriate in the Transit Oriented Development category:

- A mix of high density residential uses that may include apartments, condominiums, townhouses, row houses, and senior care facilities.
- Retail uses that create high activity in the center of the TOD.
- Office use and other moderate to high intensity forms of employment to maximize the number of people having access to their job via transit.
- Public buildings/uses that are an amenity. Such uses can include plazas, parks, clinics, libraries, and public service centers.
- Food oriented retail uses such as cafes and restaurants adjacent to public spaces to encourage gathering.
- Industrial uses that have high number of employees and no outside storage or other intense on-site activities.
- Personal service establishments (barber shops, dry cleaners, etc.)

Locational Criteria—Transit Oriented Development land uses should be located one-quarter to one-half mile from a major transit hub.

Development Policies—The following are general development policies for Transit Oriented Development:

- Residential densities shall have a minimum of 11 units/acre.
- Buildings are encouraged to be a minimum of two stories to maximize available land for development and encourage higher densities.
- Parking should be minimized when possible to encourage pedestrian use and use of transit.
- Parking is encouraged to be located behind buildings or underground. Shared parking and bicycle facilities are encouraged as part of any development.
- Buildings shall be oriented to the street to encourage pedestrian activity and foster ongoing activity.
- Use of high quality building materials is encouraged to allow for a lasting development and be aesthetically appealing.
- Public spaces should be located to provide a community focal point and also be harmonious to adjacent land uses.

Source: Anoka Comprehensive Plan, Chapter 5: Land Use, page 45. Available online: <http://www.ci.anoka.mn.us/vertical/Sites/%7B213A9A90-C8E1-49AA-AC02-51D3C4882D33%7D/uploads/%7BC7B5F6BC-DD07-479D-B114-970F8920D746%7D.PDF>

Health Indicator 6: Does the plan discuss pedestrian and bicycle safety (e.g., through design, lowering speed limits)?

Health Importance

Traffic crashes are the leading cause of death of people from ages 1 to 34. In Minnesota in 2010, there were 808 vehicular crashes that involved a pedestrian that was either killed or injured by a motor vehicle. These crashes resulted in 824 injured pedestrians and 36 pedestrian deaths. Also, there were 898 bicycle crashes, in which 882 bicyclists were injured and 9 bicyclists were killed. Of the 882 bicyclists injured, 448 (50.8%) were 24 years of age or younger.¹

The number of pedestrian and bicyclist injuries and fatalities continues to reinforce the importance of designing safer pedestrian and bicycle infrastructure. Research has shown that alternative design methods, including traffic calming techniques, can help reduce the number of conflicts between automobiles, bicyclists and pedestrians. Traffic calming techniques help slow the speed of vehicles and include the following strategies: sidewalk bump-outs that narrow the street and provide shorter distances for pedestrians to cross; speed bumps; roundabouts; narrowed lanes; and enforcement of speed reduction.

1 Minnesota Department of Public Safety, Office of Traffic Safety. Minnesota Motor Vehicle Crash Facts 2010. Accessed online: <https://dps.mn.gov/divisions/ots/educational-materials/Documents/CRASH-FACTS-2010.pdf>.

Designated or signed bicycle infrastructure improves safety for bicyclists by encouraging more riders and alerting motor vehicles to bicyclists' presence. In fact, improving streets to better accommodate bicyclists may lead to enhanced safety for all road users.² Cities with high rates of bicycling have lower risk of fatal and severe crashes for all road users due to street network design and the presence of a large number of bicyclists, which help reduce vehicle speeds.³ Successfully calming traffic reduces the number of accidents and improves both the actual and perceived safety of all users.

Defining the Indicator

The purpose of this health indicator was to examine if any of the developed communities have adopted pedestrian and bicycle safety design standards, especially traffic calming techniques. The indicator was met if the comp plan included traffic calming techniques, strategies that support safer routes for pedestrians and bicyclists, or other unique programs.

Comprehensive Plan Review Findings

Thirty communities provided language in their transportation chapters that supported pedestrian and bicycle safety or traffic calming techniques. Twenty communities provided policy statements, and ten communities referenced traffic calming. In most cases, the policy statements provided design flexibly as part of their roadway design process

2 Garrick, Norman and Wesley Marshall (2011), "Evidence on Why Bike-Friendly Cities Are Safer for All Road Users," Environmental Practice, Version 13, Number 1: 16-27.

3 Garrick, Norman and Wesley Marshall (2011), "Evidence on Why Bike-Friendly Cities Are Safer for All Road Users," Environmental Practice, Version 13, Number 1: 16-27.

Health Indicator 6: Ped & Bike safety

to accommodate safer routes and mobility needs for non-motorized users. The strongest policy statements were linked to plans that either have complete streets policies or supported complete streets design standards (see Health Indicator 4) (e.g., Bloomington, Edina, Richfield, St. Paul, Shoreview, Stillwater and St. Louis Park).

The reviewed comp plans did not suggest any location-specific implementation measures. However, Excelsior, Richfield and New Brighton provided the strongest examples of integrating traffic calming techniques into their comp plans. Richfield's plan included an appendix that discussed traffic calming methods (see box: City of Richfield Comprehensive Plan), and New Brighton's transportation chapter provided a number of policy statements.

The assessment found that a number of communities had supplemented their parks and trails chapter with specific master plans that may have contained additional policies and strategies related to improving pedestrian and bicyclist safety. For instance, the City of Fridley adopted a Bicycle Plan. The plan was consistent with Mn/DOT's Bikeway Facility Design Manual (see sidebar on the next page), which is a key resource in addressing pedestrian and bicycle safety measures in roadway designs. MDH did not evaluate the supplemental plans that may have contained traffic calming techniques or other unique programs or strategies that support safer routes for pedestrians and bicyclists.

Recommendations

Met Council's policy documents include some language regarding pedestrian and bicyclist safety, but more policies and strategies could be included in the documents. The strongest policy statement in the regional policy documents related to pedestrian and bicycle safety can be found under Chapter 6: Highway System Policy 9, Strategy 9b, which mentioned traffic calming techniques. The review did not discover any other policy statements that emphasized bicycle and pedestrian safety measures. The 2030 TPP focuses primarily on connectivity issues and the coordination of transportation investments. Discussion on

City of Richfield Comprehensive Plan: Chapter 6 Transportation

Looking forward to year 2030, the City continues to support the following goal and related implementation strategies:

Goal 1: Improve non-motorized and pedestrian travel in the City.

Strategies:

- Construct additional, wider sidewalks that are set back farther from the street for increased safety.
- Require Mn/DOT to include pedestrian access to transit in future I-494 and TH 62 reconstruction projects.
- Construct additional bus shelters attractive to users and safely located around intersections.
- Reduce roadway widths to allow for sidewalk and/or bike lanes. This may also reduce vehicular speeds.
- Create safe road crossings in high traffic areas. Such crossings may include the use of skyways, if appropriate.
- Use traffic-calming measures to discourage through traffic on local streets.
- Identify pedestrian/bike trails to connect with adjacent/surrounding communities.

Source: Richfield Comprehensive Plan, Chapter 6: Transportation, page 6-2. Available online: http://www.cityofrichfield.org/CD/docs/06___Transportation.pdf

Minnesota Bikeway Facility Design Manual

The purpose of the Minnesota Bikeway Facility Design Manual is to provide engineers, planners, and designers with a primary source to implement the Minnesota Department of Transportation's (Mn/DOT's) vision and mission for bicycle transportation in Minnesota. This manual also provides citizens, developers, and others involved in the transportation planning process, guidance on the critical design and planning elements to promote bicycle safety, efficiency, and mobility.

Mn/DOT's vision for bicycle transportation:

Minnesota is a place where bicycling is a safe and attractive option in every community. Bicycling is accommodated both for daily transportation and for experiencing the natural resources of the state.

Mn/DOT's mission for bicycle transportation: Mn/DOT will safely and effectively accommodate and encourage bicycling on its projects in Minnesota communities, plus in other areas where conditions warrant. Mn/DOT will exercise leadership with its partners to similar results on their projects.

Source: Mn/DOT Bikeway Facility Design Manual, March 2007. Available online: <http://www.dot.state.mn.us/bike/designmanual.html>

safety can be found in the 2030 TPP under Chapter 9, Pedestrian and Bicyclists, but the section does not provide any policy statements or strategies related to safety.

MDH encourages the Met Council to provide a stronger emphasis on pedestrian and bicycle safety in future 2030 TPP and 2030 RPPP updates. Incorporating design standards, such as traffic calming techniques and designated bike routes, in the policy documents would support planning for pedestrian and bicycle safety and improve health outcomes.

Health Indicator 7: Park needs

Health Indicator 7: Does the plan evaluate park needs of the population?

Health Importance

Research suggests that the built environment, including parks and trails, can positively influence physical activity.^{1,2} Promoting physical activity among children and adults is a national health priority in the United States, especially given the epidemic increases in obesity. In Minnesota, 25% of the adult population is considered obese and 47% do not achieve the weekly physical activity recommendations.³ Regular physical activity lowers the risk of chronic diseases and is an important strategy for reversing the obesity epidemic.

In the past, planning for future recreational needs has been based on guidelines established by the National Recreation and Park Association (NRPA) (see Table 3). The

1 Committee on Physical Activity, Health, Transportation, and Land Use (2005), "Does the Built Environment Influence Physical Activity? Examining the Evidence," Transportation Research Board, Institute of Medicine of the National Academies. Accessed online August 2011: <http://onlinepubs.trb.org/onlinepubs/sr/sr282.pdf>.

2 Heath GW, Brownson RC, Kruger J, et al. (2006), "The effectiveness of environmental and policy interventions to increase physical activity: a systematic review." *Journal of Physical Activity and Health*, 3(Suppl 1): S55–S76.

3 Behavioral Risk Factor Surveillance System (BRFSS). (2009), Accessed online August 2011: <http://apps.nccd.cdc.gov/BRFSS/>.

Type	Size	Service Area	Service Standard
Mini-Park	2,500 S.F. – 1 Acre	Less Than ¼ Mile Distance in Residential Settings	0.25 – 0.50 ac / 1,000
Neighborhood Park	1 – 15 Acres	One Neighborhood ¼ to ½ Mile Radius	1.0 – 2.0 ac / 1,000
Community Park	16 – 99 Acres	Several Neighborhoods 1 to 2 Mile Radius	5.0 – 8.0 ac / 1,000
Metropolitan Park	100 – 499 Acres	Several Communities Within 1 Hour Drive	5.0 – 10.0 ac / 1,000
Regional Park	500 + Acres	Several Communities Within 1 Hour Drive	Variable
Special Use Areas	Varies Depending on Desired Size	No Applicable Standard	Variable
Linear Park/ Linkages	Sufficient Width to Protect the Resource and Provide Maximum Usage	No Applicable Standard	Variable

purpose of the guidelines was to serve as a nationwide standard for park planning and land acquisition needs at the community level. Today the guidelines are still widely accepted, but are no longer supported by the NRPA. The guidelines, along with proximity, access and community needs, serve as a foundation for planning parks. Providing nearby parks and play areas in a community is important for helping residents socialize, enjoy the outdoors and achieve their recommended daily levels of physical activity.

Defining the Indicator

The health indicator was met if the comp plan discussed or assessed the park needs for the community's residents.

Comprehensive Plan Review Findings

Thirty-one communities met the indicator by describing park needs for their population. Nineteen communities created master park plans to address their park needs, eleven provided policies for park maintenance and development, and one included language on park needs. In most cases, the master park plans were referenced in the comp plans and were intended to supplement the required park elements. The review did not assess the master park plans, but assumed that they provided the necessary guidance, including acreage, to accommodate future park needs. Eleven comp plans described park needs based on population counts, and many of the comp plans referenced the NRPA standards.

Anoka's plan includes the history of park planning and current trends in park needs. The plan includes a detailed inventory of existing parks by classification and the existing trail corridors, and provides 13 recreational goals identified to meet the needs of Anoka's recreational community. Each goal is accompanied by an objective and implementation strategy. (See Anoka Comprehensive Plan Recreational Goal 3 for an example.)

Anoka Comprehensive Plan

Recreational Goal 3—Construct a twenty-five (25) acre multi-purpose athletic complex.

Objectives

- To address the park facilities shortage of seventy-five (75) foot and seventy (70) foot base pad baseball fields.
- To provide additional opportunities for maintenance restoration of other athletic turf areas. To provide a future opportunity for lacrosse when necessary.

Strategy

While recognizing the political sensitivity of the Rum River Nature preserve, there appears to be enough land adjacent to the Anoka County Library for a baseball complex and parking lot. The possibility of utilizing land just west of the Anoka High School owned by the school district and other property owned by the state could provide an opportunity to develop an athletic complex south of 116.

Source: Anoka Comprehensive Plan, Parks, Trails, and Open Spaces Chapter, page 268.
Available online: <http://www.ci.anoka.mn.us/vertical/Sites/%7B213A9A90-C8E1-49AA-AC02-51D3C4882D33%7D/uploads/%7B4002D902-0E7B-4BC0-9106-44032B804395%7D.PDF>

Apple Valley's plan reviews the existing parks system by park classifications and the appropriate number and classes of parks for its population. Additionally, the plan includes specific projects and key network connections to implement, as well as policies such as the following:

“The City will review and update this chapter [Parks and Active Living] periodically to reflect new and current trends, new development criteria, unanticipated population densities and any other pertinent factors that affect park and recreation goals, policies and future direction of the system.”

Recommendations

Identification of future local park needs is not a required component of the comp plan process; however, the regional park system cannot stand alone in meeting the region's recreational needs. A combination of regional and local systems is needed to ensure that people living in the seven-county metro area have adequate access to recreational opportunities for multiple health benefits. Local comp plans need to address their local park needs as well as coordinate with regional plans. When determining local needs, planners should consider their communities' changing demographics and related changing recreational needs. Using national standards and engaging community members in the planning process help ensure that parks meet residents' needs. For instance, some communities have changed in recent years with an influx of foreign-born residents, dispersal of young families and aging baby boomers. A park planned twenty years ago for a community with young families may find that the “tot-lots” are not meeting the recreational needs of a growing senior population or immigrant families that prefer different recreational facilities. MDH encourages the Met Council to provide guidance that helps local agencies establish park plans that address local needs and coordinate with regional systems.

Health Indicator 8: Does the plan address access to trails for residential areas?

Health Importance

Trails are commonly used for physical activity. Regular physical activity lowers the risk of chronic diseases and is an important strategy for reversing the obesity epidemic. A national study conducted in 2006 indicated that about one-quarter of sampled adult men and women used a walking, hiking or bicycling trail at least once per week.¹ Several studies have demonstrated that trails located close to where people live are more likely to be used. For example, one study showed that the percentage of park area (that included nature trails and bicycle paths) located near residential housing, was associated with higher levels of physical activity among young children.² Another study found that among 363 adults the likelihood of using a suburban rail-trail decreased by 42 percent for every 0.25 mile increase in distance from a home to the trail.³ In Minnesota, a Minneapolis study found a sharp decline in trail use among bicyclists who had to travel 1.5 miles or further to access a trail.⁴

1 Librett JJ, Yore MM and Schmid TL (2006), "Characteristics of physical activity levels among trail users in a U.S. national sample." *American Journal of Preventive Medicine*, 31(5): 399–405.

2 Roemmich JN, Epstein LH, Raja S, et al. (2006), "Association of access to parks and recreational facilities with the physical activity of young children." *American Journal of Preventive Medicine*, 43(6): 437–441.

3 Troped PJ, Saunders RP, Pate RR, et al. (2001), "Associations between self-reported and objective physical environmental factors and use of a community rail-trail." *American Journal of Preventive Medicine*, 32(2): 191–200.

4 Krizek KJ, El-Geneidy A and Thompson K (2007), "A detailed analysis of how an urban trail system affects cyclists' travel." *Transportation*, 34: 611–624.

Recent research suggests that trails are a cost-effective means for promoting physical activity and potentially reducing medical expenses. Using data from the National Medical Expenditure Survey, a Nebraska study found that for every \$1 spent on trails, there was approximately \$3 in savings in direct medical costs.⁵

Many trail users identify fitness and health as some of the main benefits and motivating factors for trail use; however, trail users also identify other benefits including relaxation and solitude, fun and enjoyment, seeking a challenge or personal control, and being outdoors and learning about nature.^{6,7}

Trails help connect people of all ages to the places where they live, work and play, and trails provide an ideal setting for encouraging physical activity through walking, bicycling and other recreational activities.

Defining the Indicator

The health indicator evaluated whether the comp plans addressed access to trails from residential areas.

Comprehensive Plan Review Findings

All of the comp plans provided an inventory of existing trail systems. Nineteen communities have developed

5 Wang G, Macera CA, Scudder-Soucie B, et al. (2005), "A cost-benefit analysis of physical activity using bike/pedestrian trails." *Health Promotion Practice*, 6(2): 174–179.

6 Bichis-Lupas M and Moisey RN (2001), "A benefit segmentation of rail-trail users: implications for marketing by local communities." *Journal of Park and Recreation Administration*, 19: 78–92.

7 Moisey RN and Bichis M (1999), "Psychographics of senior nature tourists: the Katy Nature Trail." *Tourism Recreation Research*, 24(1): 69–76.

a parks/trails master plan in addition to the requirements of the comp plan. The parks/trails master plans were not reviewed, aside from the description included in the communities' comp plans. Parks/trails master plans typically assess the community's existing parks and trails inventory, include a community participation process to identify future needs of the community, and provide a map or implementation plan for future local parks and trails expansions or additions.

Arden Hills' comp plan, one of the 19 communities that have a parks/trails master plan, provides a list of future trail improvements to make expansions and upgrades to the community's current system. The comp plan explicitly states that "while paths are popular for recreational purposes, there is also a growing demand for utilitarian pathways that connect residential areas to destinations such as commercial areas, offices, parks, and other popular places."

Coon Rapids' Parks and Open Space chapter of the comp plan is based on their 2001 Coon Rapids Parks, Open Spaces, and Trail System. Policy 3-1 for the trail system states "The City will require developers to dedicate land for trails when the developed land contains an identified trail corridor. The developers will also be required to provide access from new subdivisions to those trails." This policy specifically addresses the connection of residences (in this case new subdivisions) with a trail system for both transportation and recreational use.

The process of developing a parks/trails master plan achieves the intent of the health indicator. All 19 of the communities that included a parks/trails master plan were categorized as Response 1: Implementation. Twenty-two communities provided a map depicting existing and future local trails. The maps indicated future trail initiatives being considered as part of the community's transportation network. These maps recognize the importance of the health indicator, and were categorized as Response 2: Guidance. Twelve communities did not provide a map of future trail connections nor referenced any master plans, and therefore did not meet the health indicator.

Recommendations

The comp plans addressed the regional trails, networks and regional investments identified in the 2030 RPPP. In most cases, the comp plans identified existing systems, but did not clearly identify future needs nor link them to residential areas. Overall, the comp plans could improve addressing local trail needs. These findings reflect the comp plan requirements, which only ask communities to identify, map and plan for regional parks, open spaces and trails. The requirements do not provide any direction for identifying local trail needs. MDH encourages the Met Council to provide guidelines on determining local trail needs and linking local trails to regional trails.

The assessment found that where local trails were being planned, the plans did not coordinate between local trails, regional trails and trails located in adjacent communities. Uncoordinated trail initiatives create fragmented trails and do not maximize trail dollars. Interagency and across jurisdiction coordination should be addressed in all comp plans to ensure that trails are being linked across borders and with the regional system.

The 2030 Parks Policy Plan includes the following statement:

"Local trails typically provide connectivity between community destinations, such as schools, libraries and community centers. The Council encourages local trail connections to the regional trail network where appropriate. While the local recreational open space areas are not covered in this plan, the facilities and services they offer are taken into consideration when master plans of the regional system are prepared and reviewed."

The Met Council and MDH recognize that regional trails are unlikely to meet all of the community's needs, and some of the communities do not have access to regional trails. Therefore, it is important to consider local trail connections as part of the comp planning process. Coordinated planning of local and regional trails will help residents meet their daily recreational needs and potentially increase non-motorized transportation.

Health Indicator 9: Has the plan considered climate change?

Health Importance

Scientific consensus holds that the global climate is changing with rising surface temperatures, melting ice and snow, rising sea levels, and increasing climate variability.¹ Regional and local climate changes (e.g., temperature, precipitation) are expected to have substantial impacts on public health, including increases in morbidity and mortality attributed to extreme heat events (e.g., heat waves), extreme weather events (e.g., floods, hurricanes), air pollution, and vector-borne and other infectious diseases.²

There are known, effective public health responses to many of these impacts, but the scope, timeline, and complexity of the public health impacts because of climate change are unprecedented. Some of these impacts will require immediate actions (e.g., emergency response to a disaster); others will require longer-term, sustained actions (e.g., developing and designing infrastructure to address increases in heat and heavy precipitation events). Adapting and responding to the public health impacts of climate change will need multi-disciplinary solutions, requiring the coordination of all levels of government, academia, the private sector, and non-government organizations.

1 Oreskes N (2004) "The scientific consensus on climate change," Science Vol 306.

2 Interagency Working Group on Climate Change and Health (2010), "A Human Health Perspective On Climate Change" Cary, NC: Environmental Health Perspectives.

Defining the Indicator

The indicator was broadly defined to allow for varying methods of addressing climate change from an adaptation and/or mitigation perspective. Health Indicator 9 assessed whether the comp plans acknowledged climate change.

Comprehensive Plan Review Findings

Thirteen communities (25%) recognized climate change. A number of communities recognized climate change through the U.S. Conference of Mayors Climate Protection Agreement (see sidebar: The U.S. Conference of Mayors Climate Protection Agreement). In Minnesota, 45 communities have signed the agreement. Twelve of those communities are developed communities (see Table 4), but only four of the 12, Edina, Mahtomedi, Roseville and White Bear Lake, mentioned the Mayor's agreement in the comp plan. Developed communities that recognized the Mayor's agreement were considered to have met "Response 1: Implementation" for the health indicator. Burnsville, Minneapolis and St. Paul included specific policies that addressed climate change. Arden Hills, Bloomington, Fridley, Richfield, St. Louis Park and Stillwater provided language that stressed climate uncertainties or the challenges posed by climate change.

Recommendations

The 2010 Master Water Supply Plan³ and two of Met Council's policy documents, the 2030 WRMP and the 2030 TPP, address climate change. The 2010

3 Metropolitan Council. 2010. Metropolitan Area Master Water Supply Plan. Publication no 32-09-065. Accessed online, <http://www.metrocouncil.org/environment/WaterSupply/masterplan.htm>



Health Indicator 9: Climate change

The U.S. Conference of Mayors Climate Protection Agreement

The U.S. Conference of Mayors Climate Protection Agreement is administered through the U.S. Conference of Mayors Climate Protection Center. The agreement and its participating cities are committed to take the following actions:

1. Strive to meet or beat the Kyoto Protocol targets in their own communities, through actions ranging from anti-sprawl land-use policies to urban forest restoration projects to public information campaigns;
2. Urge their state governments, and the federal government, to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol - 7% reduction from 1990 levels by 2012; and
3. Urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system.

Master Water Supply Plan states, “Anticipated changes in climate will inevitably affect the water supply for everyone. It is likely that more communities will face water supply limitations associated with aquifer extent and productivity, groundwater and surface water interaction, and contamination.” Additionally, Principal 2 of the overarching goal of the Plan recognizes that, “Water supply planning must be done in such a way that the plans can adapt to factors such as climate changes, technology and emerging contaminants.” The Plan discusses the potential impacts of climate and weather on specific aquifers across the 7-county region. There is a section of the Plan that is entitled “The Impact of Climate” that discusses the water supply’s susceptibility to drought. The 2030 WRMPP similarly recognizes that a potential water supply limitation could stem from reduced recharge as a result of climate variations.

The 2030 TPP recognizes growing concern and policy pressures to address the uncertain outcomes of climate change. The 2030 TPP includes a number of regional policies and strategies that help mitigate climate change. For instance, it discusses the reduction of GHG

Table 4: Developed Communities who have signed the U.S. Conference of Mayors Climate Protection Agreement

Mayor	City	Population
Mary Hamann-Roland	Apple Valley	45,5527
Tim Willson	Brooklyn Center	29,172
ReNae Bowman	Crystal	21,955
James Hovland	Edina	47,425
Peter Lindstrom	Falcon Heights	5,438
Linda Loomis	Golden Valley	19,921
Judson Marshall	Mahtomedi	8,017
Diana Longrie	Maplewood	34,947
R.T. Rybak	Minneapolis	382,618
Craig Klausung	Roseville	33,690
Chris Coleman	St. Paul	287,151
Paul Auger	White Bear Lake	23,733

emissions (i.e., Policy 8, Strategy 8a and 8e) and provides a number of Travel Demand Management (TDM) strategies that reduce the number of single occupancy trips (i.e., Policy 3, Strategy 3a – 3h). These policy statements begin to address climate change mitigation, but additional planning is needed so that the region adapts successfully to climate changes.

The Met Council is aware of the potential impacts climate change may have on the regional systems, such as water and transportation. MDH encourages the Met Council to continue exploring ways in which climate change can be incorporated into the comp planning process. Recognizing climate change as part of the planning process will help prepare communities for climate changes, such as extreme heat events and increased heavy precipitation events, and prevent associated public health problems. Including climate change adaptation and mitigation strategies as part of the planning process will create healthier and more sustainable communities that are prepared for climate uncertainties.

Health Indicator 10: Does the plan address targets or strategies for greenhouse gas reductions community-wide?

Health Importance

Greenhouse gas (GHG) emissions resulting from human activities, such as energy generation and transportation, are considered the leading cause of anthropogenic climate change by scientists.^{1,2} Climate change is causing more extreme and frequent weather events like flooding, droughts and hurricanes; sea level rise; and other public health-related problems. Reducing GHGs may slow the impacts of climate change on communities world-wide.

Mitigation of GHG emissions can have additional benefits to public health by reducing the adverse health effects of local air pollution. Currently in the U.S., electricity generation is responsible for approximately one-third of carbon emissions. In Minnesota in 2009, 33% of electricity was generated by coal, 35% from natural gas, 11.4% from nuclear, 5.5% from petroleum, and 15% from renewable

sources.³ “By reducing emissions from nine older coal plants in the Midwest, roughly 300 deaths, 2,000 respiratory and cardiac hospital admissions, 10,000 asthma attacks, and 400,000 person-days of respiratory symptoms could be avoided each year.”⁴

In 2008, transportation generated approximately 27% of U.S. GHG emissions.⁵ Encouraging non-motorized transportation modes, such as biking or walking instead of driving, increases physical activity and improves air quality. The benefits of improved air quality as a result of reduced driving were documented during the 1996 Olympic Games in Atlanta, Georgia. “When alternative transportation policies during the Games reduced vehicle exhaust and related air pollutants (such as ozone) by about 30%, the number of acute asthma attacks and Georgia Medicaid claims fell by 40%, and pediatric emergency admissions dropped 19%.”⁶

3 U.S. Energy Information Administration (EIA) (2011), State Electricity Profiles 2009. Accessed online: http://www.eia.gov/cneaf/electricity/st_profiles/sep2009.pdf.

4 Cifuentes L, et al. (2001), Hidden health benefits of greenhouse gas mitigation. *Science's Compass*, Vol 293. Accessed online August 2011: http://intrawww.ing.puc.cl/siding/datos/public_files/profes/lac_VFYWLCQCAXBZJFO/2001-Science-Cifuentes%20et%20al%20-%20Hidden%20Benefits-Web%20version.pdf.

5 U.S. Environmental Protection Agency (EPA). Transportation and Climate: Basic Information. Accessed online September 2011: <http://www.epa.gov/otaq/climate/basicinfo.htm>.

6 Cifuentes L, et al. (2001), “Hidden health benefits of greenhouse gas mitigation,” *Science's Compass*, Vol 293. Accessed online: http://intrawww.ing.puc.cl/siding/datos/public_files/profes/lac_VFYWLCQCAXBZJFO/2001-Science-Cifuentes%20et%20al%20-%20Hidden%20Benefits-Web%20version.pdf.

1 Oreskes N (2004) “The scientific consensus on climate change,” *Science* Vol 306.

2 Hegerl, G.C., F. W. Zwiers, P. Braconnot, N.P. Gillett, Y. Luo, J.A. Marengo Orsini, N. Nicholls, J.E. Penner and P.A. Stott, 2007: Understanding and Attributing Climate Change. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Defining the Indicator

Health Indicator 10 examined whether communities have plans to reduce GHG emissions.

Comprehensive Plan Review Findings

The review found 11 communities (i.e., Burnsville, Champlin, Edina, Falcon Heights, Mahtomedi, Maplewood, Minneapolis, Roseville, St. Paul, Wayzata and White Bear Lake) that provided specific policy statements that addressed the reduction of GHG emissions. Policy statements that encouraged the use of mass transit and sustainable site design are a means of reducing GHGs, but were not counted unless the measure specifically mentioned reduction of GHGs.

On some level, many of the comp plans had policy statements or strategies that could reduce GHG emissions. For instance, Arden Hills recognized goals from the Minnesota Next Generation Act of 2007 aimed at reducing GHG emissions, and the City of Shoreview is striving to acquire low-emission city vehicles and equipment. However, the comp plans primarily addressed reducing GHGs indirectly by encouraging alternatives to driving (e.g., multimodal transportation options), renewable energy (e.g., solar access), and energy efficiency (e.g., sustainable building design). These approaches can help reduce GHG emissions, but they were not directly linked to GHG reduction.

Recommendations

The 2030 TPP takes into consideration the reduction of GHG emissions. Policy 8: Energy and Environmental Considerations in Transportation Investments provides strategies in addressing GHGs. These strategies include 8a and 8e:

Examples of GHG policy statements and strategies

The City of Edina could be used as a model for future comp plan updates. The plan established the following milestones:

- Milestone 1. Conduct a baseline emissions inventory and forecast
- Milestone 2. Adopt an overall greenhouse gas reduction goal and an emissions reduction target based on the forecasted year.
- Milestone 3. Develop a Local Action Plan.
- Milestone 4. Implement policies and measures.
- Milestone 5. Monitor and verify results.

The following policy statements and strategies highlight additional examples:

Falcon Heights – Policy: To encourage practices that conserve energy and lower the City’s over-all carbon emissions, making Falcon Heights a healthier, more sustainable community.

St. Paul – Strategies: In 2005, St. Paul initiated Sustainable Saint Paul, which focuses on carbon dioxide (CO₂) reduction activities: energy-efficient retrofits for existing City facilities; clean and renewable energy supply; green development; green gatherings; green manufacturing initiative; green space and urban reforestation; National Great River Park; recycling and waste reduction; transportation options – alternative fuels and vehicles; and water resources management.

Wayzata – Policy: Support the use of alternative modes of transportation, such as public transit and bicycle sharing programs, to reduce CO₂ and other harmful emissions.

White Bear Lake – Strategy: Complete an emissions study to measure the City’s carbon footprint and establish reduction goals (immediately).

- **Strategy 8a.** Reduction of Transportation Emissions: The Council will promote strategies to reduce transportation emissions of pollutants identified in the federal Clean Air Act and its amendments.
- **Strategy 8e.** Reduction of Greenhouse Gas Emissions: The Council will support and implement initiatives to reduce greenhouse gas emissions including programs that reduce the impact of transit on energy usage and the environment such as Metro Transit's "Go Greener" initiative.

Most of the comp plans did not demonstrate a commitment to reducing GHGs. MDH encourages the Met Council to request that the comp plans discuss strategies in reducing GHG emissions in the transportation and land use chapters.

Health Indicator 11: Severe rain events

Health Indicator 11: Does the plan address severe rain events or increased precipitation?

Health Importance

Climate and land use changes have the potential to contribute to increased flood risks and associated health burdens.¹ Under future climate conditions, altered patterns of precipitation are expected to increase the frequency and intensity of floods. Possible health outcomes from flooding include loss of life, displacement, water-borne diseases, infrastructure destruction (e.g., land transport systems, buildings, power supplies, etc.) and disruption of crop production.²

Heavy downpours are already twice as frequent in the Midwest as they were a century ago.³ The Union of Concern Scientists, projects that Minneapolis-St. Paul is likely to experience a more than 66 percent increase in heavy rainfalls (defined as more than two inches of rain in one day) over the next few decades.⁴

1 Ahern M et al. (2005), "Global Health Impacts of Floods: Epidemiologic Evidence," *Epidemiologic Reviews*. Vol 27.

2 World Health Organization (WHO) (2002), "Floods: Climate Change Adaptation Strategies for Human Health," Accessed online September 2011: http://www.euro.who.int/__data/assets/pdf_file/0007/74734/E77096.pdf.

3 Kunkel K, Andsager K, and Easterling D (1999), "Long-term trends in extreme precipitation events over the conterminous United States and Canada," *Journal of Climate* 12:2515–2527.

4 Union of Concerned Scientists (2009), "Confronting Climate Change in the U.S. Midwest: Minnesota," Accessed online: http://www.ucsusa.org/assets/documents/global_warming/climate-change-minnesota.pdf.

Additionally, increased development creates more impervious surfaces (roofs, roads, parking lots, etc.) that contribute to higher flood peaks.⁵ Impervious surfaces collect pathogens, metals, sediment, and chemical pollutants. These contaminants are conveyed to receiving waters as storm water runoff during rain and snowmelt events. Exposure to contaminated swimming and recreational areas, drinking water supplies, and fisheries from storm water can cause potential chronic and/or acute human health effects.^{6,7} Storm water runoff volumes have been shown to increase linearly with increased impervious surface areas.

Climate change coupled with increased impervious surfaces in Minnesota, are likely to increase the risk of floods and other issues associated with extreme rainfall and stormwater system overflow. Planning for increased precipitation, especially as it relates to increased severe rain events, is important for protecting the public's health.

Defining the Indicator

Health Indicator 11 determined if comp plans addressed planning for extreme precipitation events related to climate change.

5 Gaffield SJ, Goo RL, Richards LA, Jackson RJ (2003), "Public Health Effects of Inadequately Managed Stormwater Runoff," *American Journal of Public Health*, September; 93(9): 1527–1533.

6 Pitt R et al. (2001), "Potential Human Health Effects Associated with Pathogens in Urban Wet Weather Flows." Accessed online August 2011: <http://rpitt.eng.ua.edu/Publications/MonitoringandStormwater/Stormwater%20Pathogens%20JAWRA.pdf>.

7 Gaffield SJ, Goo RL, Richards LA, Jackson RJ (2003), "Public Health Effects of Inadequately Managed Stormwater Runoff," *American Journal of Public Health*, September; 93(9): 1527–1533.

Comprehensive Plan Review Findings

None of the comp plans mentioned severe rain events or increased precipitation from climate change. The comp plans are required to submit a local water/stormwater management plan. The review did not assess the stormwater management plans, so it is unknown if these plans addressed increases in severe rain events due to climate change.

Recommendations

The Met Council plans for increased precipitation and climate change through the local water management plans that all cities and townships complete, as well as watershed plans, prepared by watershed management organizations. The Met Council promotes infiltration and low impact development targeted to reduce the effects of increasing precipitation and impervious surfaces created by development. Additionally, the Met Council pushed for and supported the current effort to update TP40 which will have new numbers for the two-, 10-, and 100-year storm events for planners and engineers to use as they plan stormwater infrastructure. The Met Council has multiple projects underway to better understand climate changes on the region's water supplies. These projects will likely inform some of the efforts to update the 2030 WRMPP.

The surface water section of the local water resource management plans requires that a land and water resources inventory be completed that includes information such as precipitation, geology, topography, surface water resources, groundwater, soil data, pollutant sources, fish and wildlife habitat and water based recreation areas.

The Local Planning Handbook also provides a list of requirements for stormwater management in the water management plans. The requirements include the following strategies that reduce stormwater quantity and improve its quality:

- *Control runoff rates so that land-altering activities, such as construction or road buildings projects, do not result in an increase in peak storm water flow.*
- *Adopt criteria such as those of the Nationwide Urban Runoff Program (NURP) criteria for wet detention basins to protect and improve stormwater runoff quality.*
- *Promote a stormwater plan that increases infiltration and decreases impervious areas*
- *Identify and adopt management practices such as those described in the Metropolitan Council's Urban Small Sites Best Management Practice Manual to reduce stormwater runoff.*

MDH supports the Met Council's strategies for planning for climate changes, including severe rain events. Emphasizing the importance of planning for increased precipitation will help communities incorporate adaptation measures into their comp plans to prevent potential negative effects of heavy precipitation on infrastructure and public health.



Summary

Summary

The review found that the developed community comp plans varied considerably in addressing public health and climate change. Four health indicators (mixed use, affordable housing, life-cycle housing, and access to trails) were met by over 75% of the comp plans. Four health indicators (complete streets, climate change, greenhouse gases, and severe rain events) were met by less than 30% of the comp plans. None of the comp plans addressed severe rain events, but the Met Council does plan for increased precipitation and climate change through the local water management plans that all cities and townships complete, as well as watershed plans, prepared by watershed management organizations. Neither the local water management plans nor the watershed plans were reviewed for this report, but MDH recognizes the importance of these plans to protecting water quality for public health. (See Table 5 on page 40 for a summary of results from the health indicators.)

A few communities' comp plans met most of the health indicators (nine or more out of the 11): Bloomington, Burnsville, Edina, Minneapolis, St. Paul and White Bear Lake. For a detailed list of health indicators met by each communities' comp plan, see Appendix F.

Overall, the comp plans could better address public health and climate change issues. The recommendations provided in this report focus on enhancing the comp plan requirements and regional polices. Recommendations for all

11 health indicators are presented below. The recommendations are intended to serve as a guide for Met Council, as it explores changes to the comp plan update process and policy documents. The recommendations also may be used by agencies and organizations that have a role in regional and local planning.

Health Indicator 1: Does the land use plan support mixed-use development?

The 2030 RDF and policy documents provide the foundation necessary to promote mixed-use developments. There are no recommendations for consideration from this review.

Health Indicator 2: Does the plan achieve its regional affordable housing goal?

The comp plans need to provide implementation language that specifically describes how they will achieve their affordable housing numbers. The comp plans should address official controls, programs and plans to promote the availability of land for affordable housing needs. To help comp plans meet the statute requirements, MDH encourages the Met Council to provide guidance and details on how future comp plans can strengthen their housing chapters to include stronger implementation sections. The connection between social benefits, health and affordable housing also should be considered as part of future comp plan updates.

Health Indicator 3: Does the plan address life-cycle housing?

The majority of comp plans supported life-cycle housing through various policy statements, but very few plans considered housing needs based

Table 5: Summary of Results from the Health Indicators

Health Indicators	Yes	No	Response 1: Implementation	Response 2: Guidance	Response 3: Language
Health Indicator #1: Mixed Use	43	10	42	1	0
Health Indicator #2: Affordable Housing	53	0	14	35	4
Health Indicator #3: Life-Cycle Housing	45	8	6	33	6
Health Indicator #4: Complete Streets	8	45	0	7	1
Health Indicator #5: TOD	19	34	4	12	3
Health Indicator #6: Ped/Bike Safety	30	23	0	20	10
Health Indicator #7: Park Needs	31	22	19	11	1
Health Indicator #8: Access to Trails	41	12	19	22	0
Health Indicator #9: Climate Change	13	40	4	3	6
Health Indicator #10: Green House Gases	11	42	3	8	0
Health Indicator #11: Severe Rain Events	0	53	0	0	0
Response 1: Implementation – The indicator was effectively addressed through an existing program, plan, resolution or regulatory tool.					
Response 2: Guidance – The indicator was effectively addressed through a policy statement, goal or strategy.					
Response 3: Language – The indicator was recognized, but no formal guidance was provided on how to effectively address the indicator.					

on specific demographic changes and how they would implement life-cycle housing. The comp plans should be discussing housing needs for the aging population and specific housing needs related to other age groups and lifestyles. The 2030 RDF emphasizes the importance of responding to housing needs based on demographic trends and provides some strategies. MDH encourages the Met Council to consider providing additional strategies and implementation measures to ensure that the comp plans are meeting future housing needs for their populations’ demographics.

Health Indicator 4: Does the plan support complete street initiatives?

The 2030 TPP recognizes the importance of complete streets and is a strategy under Policy 18: Providing Pedestrian and Bicycle Travel Systems. A number of communities have begun to adopt their own complete streets policies. MDH encourages the Met Council to integrate the State’s Complete Streets Policy into future policy plans and planning requirements. Local jurisdictions also should be encouraged to adopt a complete streets policy that applies to their roadways.

Health Indicator 5: Does the plan support transit-oriented development?

The 2030 TPP does not specifically recognize TOD as a policy or strategy. However, the 2030 TPP does provide a series of policy statements and strategies that encourage land-use patterns to develop in conjunction with multimodal transportation options. Future comp plan updates should recognize the transitways if they fall within their respected communities and consider TOD as a strategy to align Met Council’s goals in connecting land uses with multimodal transportation networks.

Health Indicator 6: Does the plan discuss pedestrian and bicycle safety?

Met Council's policy documents include some language regarding pedestrian and bicyclist safety, but more policies and strategies could be included in the documents. The 2030 TPP and 2030 RPPP should provide a stronger emphasis on pedestrian and bicycle safety. Design standards, such as traffic calming techniques and designated bike routes, should be described in the policy documents to support comp plans' planning for pedestrian and bicycle safety.

Health Indicator 7: Does the plan evaluate park needs of the population?

A combination of regional and local park systems is needed to ensure that people living in the seven-county metro area have adequate access to recreational opportunities for multiple health benefits. The comp plans need to address their local park needs as well as coordinate with regional plans. Planners should consider their communities' changing demographics and related recreational preferences to ensure that the parks meet residents' needs. MDH encourages the Met Council to provide guidance that helps local agencies establish park plans that address local needs and coordinate with regional systems.

Health Indicator 8: Does the plan address access to trails for residential areas?

In most cases, the comp plans identified existing trail systems, but more than half did not clearly identify future needs nor link the trails to residential areas and other trail systems. The assessment found that where local trails were being planned, the plans did not always coordinate between local trails, regional trails and trails located in adjacent communities. Interagency and across jurisdiction coordination should be addressed in all comp plans to ensure that trails are being linked across borders and with the regional system. Regional trails are unlikely to meet all of the community's needs, and some of the communities do not have access to regional trails. Therefore, it is important to consider local trail connections as part of the comp planning process. MDH encourages the Met Council to provide

guidelines on determining local trail needs and linking local trails to regional and cross-jurisdictional trails.

Health Indicator 9: Has the plan considered climate change?

The Master Water Supply Plan and two regional policy plans, the 2030 WRMPP and the 2030 TPP, include direct references to climate change. MDH encourages the Met Council to continue looking at ways in which climate change can be incorporated into the comp planning process. Recognizing climate change as part of the planning process will help prepare communities for climate changes, such as extreme heat waves and increased heavy precipitation events, and prevent public health emergencies.

Health Indicator 10: Does the plan address targets or strategies for greenhouse gas reductions community-wide?

The 2030 TPP takes into consideration the reduction of GHG emissions. Most of the comp plans did not demonstrate a commitment to reducing GHGs. MDH encourages the Met Council to request that the comp plans discuss strategies in reducing GHG emissions in the transportation and land use chapters.

Health Indicator 11: Does the plan address severe rain events or increased precipitation?

None of the comp plans addressed severe rain events or increased precipitation. However, the Met Council plans for increased precipitation and climate change through the local water management plans that all cities and townships complete, as well as watershed plans, prepared by watershed management organizations. MDH supports the Met Council's strategies for planning for climate changes, including severe rain events. Emphasizing the importance of planning for increased precipitation will help communities incorporate adaptation measures into their comp plans to prevent potential negative effects from heavy precipitation on infrastructure and public health.

The findings and recommendations will be presented to Met Council and others interested in the regional planning process. The report will be available for local agencies responsible for updating their comp plans. Local agencies are encouraged to use the report as a guide for future comp plan updates. MDH will work with Met Council to implement the report's recommendations.

Minnesota Department of Health

Freeman Building
625 Robert Street North
St. Paul, MN 55164
651-201-4893
651-201-5797 TTY

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Appendices

Appendices

Appendix A – Met Council Community Designations

Appendix B – Map of 53 Communities

Appendix C - Health Indicator Tracking Tool

Appendix D – Map of Livable Communities Participants

Appendix E – Map of 2030 Transitways

Appendix F – Summary of Communities by Number of Indicators Met

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Appendix A

APPENDIX A – MET COUNCIL COMMUNITY DESIGNATIONS

Source: Met Council’s 2030 Regional Development Framework, adopted January 14, 2004 and amended December 14, 2006.

Developed Communities

The Developed Communities are the cities where more than 85% of the land is developed, infrastructure is well established and efforts must go toward keeping it in good repair. These communities have the greatest opportunities to adapt or replace obsolete buildings, improve community amenities, and remodel or replace infrastructure to increase their economic competitiveness and enhance their quality of life.

Developing Communities

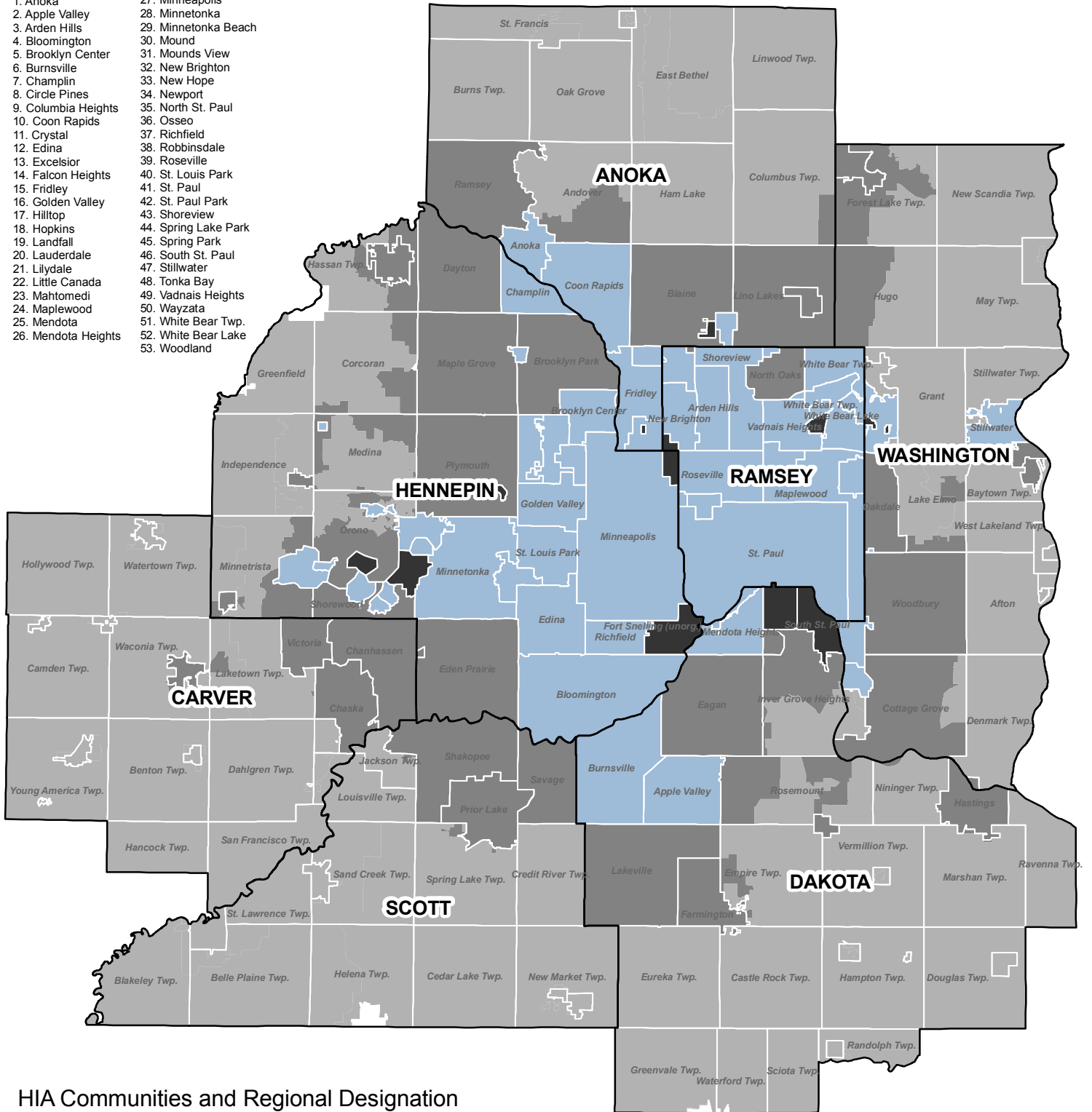
Developing Communities are the cities where the most substantial amount of new growth—about 60 percent of new households and 40 percent of new jobs—will occur. The amount of infill and redevelopment and the way in which new areas are developed directly influence when and how much additional land in Developing Communities will need urban services that will call for substantial new regional and local investments.

Rural Communities






Roughly half of the 3,000 square miles in the seven-county Twin Cities area are rural. That includes cultivated farmland, nurseries, tree farms, orchards and vineyards, scattered individual home sites or clusters of houses, hobby farms, small towns, gravel mines, woodlands, and many of the region’s remaining important natural resources. About 5% to 8% of new growth is forecast for the rural area—most of it in Rural Growth Centers. To acknowledge its diversity, the rural area is categorized into four geographic planning areas (Rural Centers, Rural Residential Areas, Diversified Rural Communities and Agricultural Areas)

Appendix B - Map of 53 Developed Communities

- Developed Communities Included in the HIA
- | | |
|---------------------|----------------------|
| 1. Anoka | 27. Minneapolis |
| 2. Apple Valley | 28. Minnetonka |
| 3. Arden Hills | 29. Minnetonka Beach |
| 4. Bloomington | 30. Mound |
| 5. Brooklyn Center | 31. Mounds View |
| 6. Burnsville | 32. New Brighton |
| 7. Champlin | 33. New Hope |
| 8. Circle Pines | 34. Newport |
| 9. Columbia Heights | 35. North St. Paul |
| 10. Coon Rapids | 36. Osseo |
| 11. Crystal | 37. Richfield |
| 12. Edina | 38. Robbinsdale |
| 13. Excelsior | 39. Roseville |
| 14. Falcon Heights | 40. St. Louis Park |
| 15. Fridley | 41. St. Paul |
| 16. Golden Valley | 42. St. Paul Park |
| 17. Hilltop | 43. Shoreview |
| 18. Hopkins | 44. Spring Lake Park |
| 19. Landfall | 45. Spring Park |
| 20. Lauderdale | 46. South St. Paul |
| 21. Lilydale | 47. Stillwater |
| 22. Little Canada | 48. Tonka Bay |
| 23. Mahtomedi | 49. Vadnais Heights |
| 24. Maplewood | 50. Wayzata |
| 25. Mendota | 51. White Bear Twp. |
| 26. Mendota Heights | 52. White Bear Lake |
| | 53. Woodland |



HIA Communities and Regional Designation

-  Non-Council Areas
-  Rural Areas
-  Developing Areas
-  Developed Areas Not Evaluated in HIA
-  Developed Areas Evaluated in HIA



9 Miles

October 2011

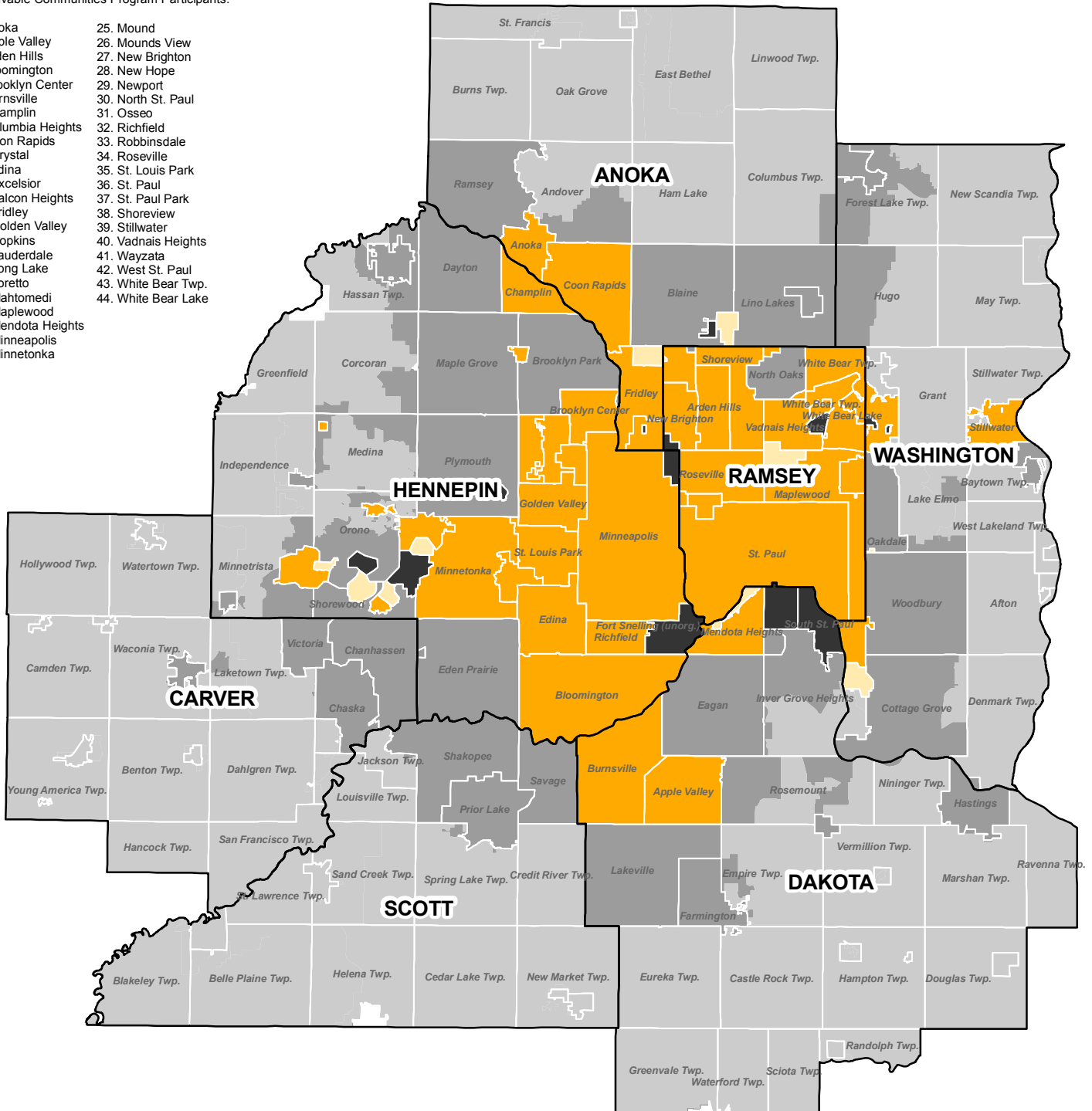
Appendix C: Assessment Tool - Metropolitan Council Comprehensive Plan Review Checklist

	Health Indicators	Yes	No	Response 1	Response 2	Response 3	Comment
1	Does the plan address the maintenance and preservation of the community's tree canopy?						
2	Does the plan address the views of greenery or vistas?						
3	Does the plan evaluate park needs by using an accepted range of overall park acreage per population?						
4	Does the plan address crime prevention through environmental design (CPTED)?						
5	Does the plan address access to healthy food sources?						
6	Does the plan achieve its regional affordable housing goal?						
7	Does the plan address access to trails for all residential areas?						
8	Does the plan address vegetated buffers along water bodies?						
9	Does the plan support complete street initiatives?						
10	Does the plan support transit oriented development?						
11	Does the land use plan support mixed use development?						
12	Does the plan address life-cycle housing?						
13	Does the plan provide guidance on separating potentially contaminating land uses with residential areas and natural resources?						
14	Does the plan provide direction on brownfield cleanup?						
15	Does the plan discuss local food production (i.e. community gardens, protection of agricultural land)?						
16	Does the plan address specific strategies that would promote social interaction or gatherings?						
17	Does the plan discuss pedestrian and bicycle safety (i.e. through design, lowering speed limits)?						
18	Is their guidance on transportation/travel demand management strategies (i.e. flex work hours, TMO's and commuter choice programs)?						
19	Does the plan address extreme heat events?						
20	Does the plan provide strategies to convert community facilities, fleets and operations to a carbon-neutral environment?						
21	Does the plan address energy-efficient building codes (i.e. LEED)?						
22	Does the plan address targets or strategies for GHG reductions community-wide?						
23	Has the plan considered climate change?						
24	Does the plan address severe rain events or increased precipitation?						

Appendix D - Livable Community Participants

Developed Communities that are Evaluated in the HIA & are Livable Communities Program Participants:

- | | |
|---------------------|---------------------|
| 1. Anoka | 25. Mound |
| 2. Apple Valley | 26. Mounds View |
| 3. Arden Hills | 27. New Brighton |
| 4. Bloomington | 28. New Hope |
| 5. Brooklyn Center | 29. Newport |
| 6. Burnsville | 30. North St. Paul |
| 7. Champlin | 31. Osseo |
| 8. Columbia Heights | 32. Richfield |
| 9. Coon Rapids | 33. Robbinsdale |
| 10. Crystal | 34. Roseville |
| 11. Edina | 35. St. Louis Park |
| 12. Excelsior | 36. St. Paul |
| 13. Falcon Heights | 37. St. Paul Park |
| 14. Fridley | 38. Shoreview |
| 15. Golden Valley | 39. Stillwater |
| 16. Hopkins | 40. Vadnais Heights |
| 17. Lauderdale | 41. Wayzata |
| 18. Long Lake | 42. West St. Paul |
| 19. Loretto | 43. White Bear Twp. |
| 20. Mahtomedi | 44. White Bear Lake |
| 21. Maplewood | |
| 22. Mendota Heights | |
| 23. Minneapolis | |
| 24. Minnetonka | |



HIA Communities & Livable Communities Program Participants

- Non-Council Areas
- Rural Areas
- Developing Areas
- Developed Areas Not Evaluated in HIA
- Developed Areas Evaluated in HIA and not part of the Livable Communities Program
- Developed Areas Evaluated in HIA and part of the Livable Communities Program

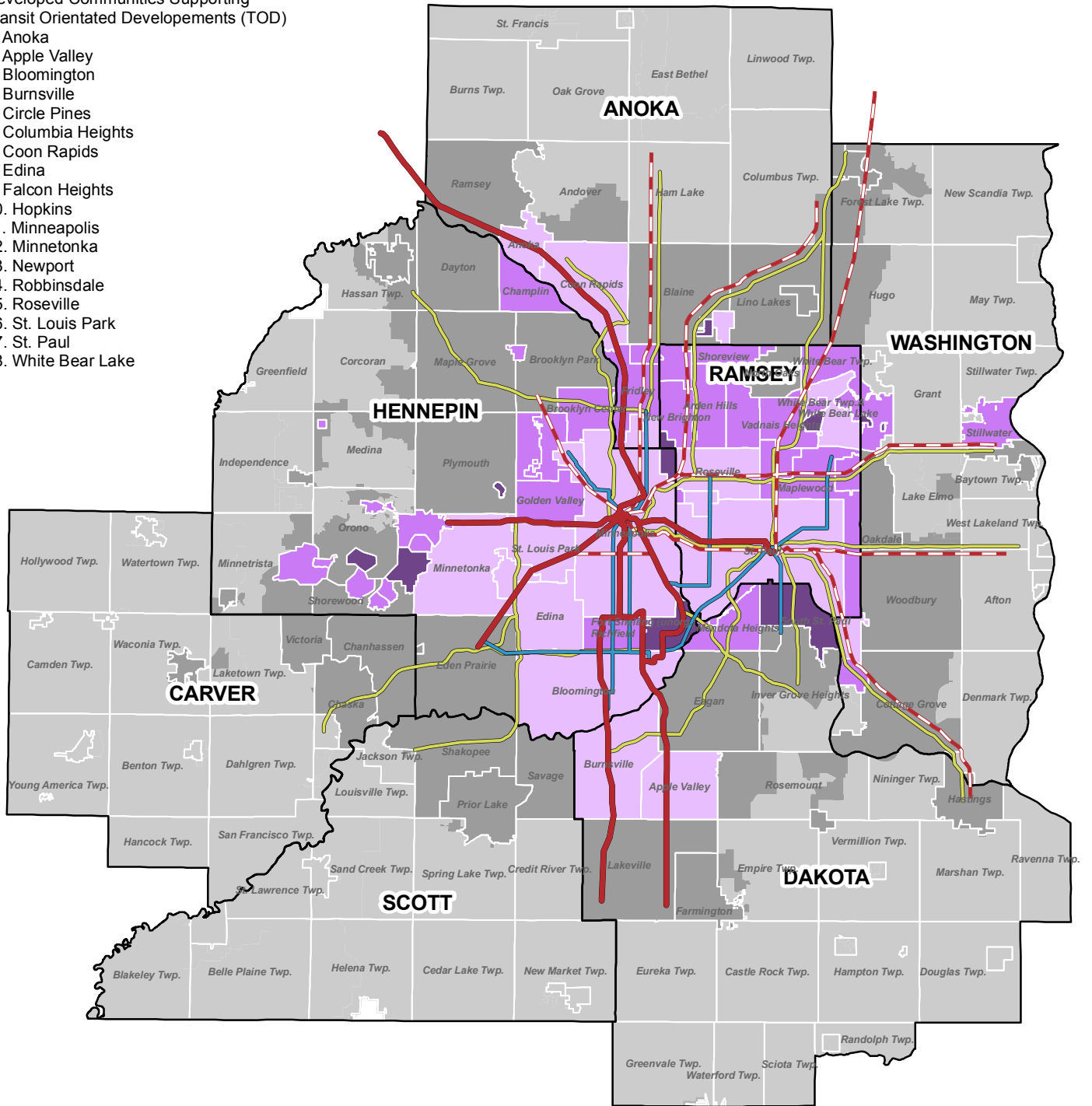


10 Miles

Appendix E - TOD & 2030 Transitways

Developed Communities Supporting
Transit Orientated Developments (TOD)

1. Anoka
2. Apple Valley
3. Bloomington
4. Burnsville
5. Circle Pines
6. Columbia Heights
7. Coon Rapids
8. Edina
9. Falcon Heights
10. Hopkins
11. Minneapolis
12. Minnetonka
13. Newport
14. Robbinsdale
15. Roseville
16. St. Louis Park
17. St. Paul
18. White Bear Lake



HIA Communities, TOD & 2030 Transitways

2030 Transitways

- Complete
- - - Developed
- Arterial BRT
- Express Bus

HIA Communities & TOD

- Non-Council Areas
- Rural Areas
- Developing Areas
- Developed Areas Not Evaluated in HIA
- Developed Areas Evaluated in HIA
- Developed Areas Evaluated in HIA that Supports TOD



10 Miles

Appendix F: Community Indicator Summary

	Health Indicator #1: Mixed Use	Health Indicator #2: Affordable Housing	Health Indicator #3: Life-Cycle Housing	Health Indicator #4: Complete Streets	Health Indicator #5: TOD	Health Indicator #6: Ped/Bike Safety	Health Indicator #7: Park Needs	Health Indicator #8: Access to Trails	Health Indicator #9: Climate Change	Health Indicator #10: Green House Gases	Health Indicator #11: Severe Rain Events	Community Summary: Total Indicators Met
Anoka	Δ	●	●		Δ	●	●	●				7
Apple Valley	Δ	●	◊	◊		●	●					6
Arden Hills	Δ	●	●			Δ	Δ	◊				6
Bloomington	Δ	Δ	●	●	◊	●	Δ	Δ	◊			9
Brooklyn Center	●	Δ	●			●						4
Burnsville	Δ	Δ	●	Δ	●	Δ	Δ	●	●			9
Champlin	Δ	Δ	Δ		◊	●	●		●			7
Circle Pines	Δ	●	●	●		Δ	Δ					6
Columbia Heights	Δ	●	●	Δ	●							5
Coon Rapids	Δ	Δ	●	●	●	Δ	Δ					7
Crystal		●				●						2
Edina	Δ	Δ	Δ	●	●	●	●	Δ	Δ			10
Excelsior		●	●		●	Δ	Δ					5
Falcon Heights	Δ	●	●	●		Δ	Δ		●			7
Fridley	Δ	●	Δ	●	◊	Δ	Δ	◊				8
Golden Valley	Δ	●	●		◊							4
Greenwood		◊	◊									2
Hopkins	Δ	●	◊	●		●	●					6
Landfall		●	●									2
Lauderdale	Δ	●	●									3
Lilydale	Δ	Δ	◊			◊						4
Little Canada	Δ	◊			●	Δ	Δ					5
Long Lake	Δ	●	●		◊		●					5
Loretto	Δ	●										2
Mahtomedi	Δ	●	●		●	Δ	Δ	Δ	●			8
Maplewood	Δ	●	●		●	●	●		●			7
Mendota	Δ	●	●				●					4
Mendota Heights	Δ	◊				Δ	Δ					4
Minneapolis	Δ	●	Δ	●	●	Δ	Δ	●	●			9
Minnetonka	Δ	●	●	●	●	Δ	Δ					7
Mound	Δ	●	●			●	●					5
Mounds View	Δ	●	●		●							4
New Brighton	Δ	Δ	Δ		●	Δ	Δ					6
New Hope	Δ	●	●		◊		●					5
Newport	Δ	●	●	●	◊		●					6
North St. Paul		●			●		●					3
Osseo	Δ	●	◊		◊		●					5
Richfield	Δ	●	●	●	●	Δ	Δ	◊				8
Robbinsdale	Δ	Δ	●		◊	●	●					6
Roseville	Δ	●	●	●		Δ	Δ	Δ	●			8
St. Louis Park	Δ	●	●	●	●	◊		●	◊			8
St. Paul	Δ	●	●	●	●	●	Δ	Δ	◊	Δ		10
St. Paul Park	Δ	●	●		●	●	●					6
Shoreview	Δ	Δ	●	●	●	Δ	Δ					7
Spring Lake Park		◊	●									2
Spring Park	Δ	●					●					3
Stillwater	Δ	Δ	Δ	◊		Δ	Δ	●				7
Tonka Bay		●			◊		●					3
Vadnais Heights		Δ	●	●								3
Wayzata	Δ	Δ	●		◊		●		●			6
White Bear Twp.		●	◊				●					3
White Bear Lake	Δ	Δ	●	Δ	◊	●	●	Δ	Δ			9
Woodland		●										1
Indicator Summary	43	53	45	8	19	30	31	41	13	11	0	
Response 1	42	14	6	0	4	0	19	19	4	3	0	
Response 2	1	35	33	7	12	20	11	22	3	8	0	
Response 3	0	4	6	1	3	10	1	0	6	0	0	

Δ = Response 1 ● = Response 2 ◊ = Response 3 (blank) = Did not meet indicator