CHAPTER 14

Travel Demand Management & Sustainability

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Overview / Summary

As urban areas grow, it becomes increasingly important to manage the demand for vehicular travel as the cost of attempting to accommodate new vehicular demand through expanded road capacity faces increasing challenges. These challenges include identifying funding for the cost of roadway expansion, the impact expansion can have on existing land uses, and the environmental and livability impacts of increasing vehicular travel. To improve the efficiency of the transportation system and maximize its value, it is desirable and will be increasingly necessary to improve alternatives to private vehicular travel, including transit services, shared transportation services and non-motorized alternatives such as cycling and walking, and to consider ways to reduce the demand for travel, whether through financial incentives, parking policy or land use changes that will reduce the need for vehicular travel.

A key to broadening the attractiveness of alternative travel options is the development of travel demand management (TDM) programs that combine pricing, service enhancements and other incentives to attract persons to consider options to personal private vehicle travel. Shifting more travel into higher capacity modes such as transit or smaller footprint modes such as bicycling or walking will be particularly critical for the future vitality of the downtown area of Rochester, where the threat of turning over ever more land to move and store vehicles has the potential to disrupt the promise of a vibrant downtown core with increasing employment, education and residential opportunities.

The Mayo Medical Center, as the anchor of the downtown area and its major employer, plays a key role in the potential success of implementing travel demand management measures. Mayo
and the City of Rochester currently collaborate on an array of TDM programs, including incentives to use transit and alternatives parking options to minimize the impact of employee’s vehicles on the downtown area, as described in the first section of this chapter.

There is a need to sustain and build upon these programs going forward. The City of Rochester through a multi-partner effort that included Mayo, the University of Minnesota-Rochester and the downtown business community completed a Downtown Master Plan / Mobility Plan in 2012 that includes a number of significant recommendations to reduce the future growth of vehicular travel in the downtown area, including measures such as restructured pricing of parking, higher frequency transit service, and improvements in infrastructure benefitting pedestrians and bicyclists. The overall goal recommended in the Downtown Mobility Plan is to reduce the share of single occupant vehicle travel from its current level of approximately 70% to 50% over the next twenty years. The recommendations developed as part of the Downtown Mobility Plan form the core of the travel demand recommendations included in this plan.

The second part of the chapter discusses the sustainability of the current transportation system, which is attracting increasing attention as vehicular travel levels have grown. There are a broad array of issues involving aspects related to transportation that fall under the umbrella of sustainability, including air and water pollution, public health, the financial implications of travel for households, and how the impacts of transportation are distributed across different strata of society. Greater attention is being given to the relationship of transportation to and its role in climate change and energy security as well, matters likely to be addressed in the future at the state and national level with but with significant implications for local communities.

In the ROCOG area there have been a number of programs developed in the last 10-20 years which respond to some of the concerns around sustainability. These include such programs as the Complete Streets Policy that Rochester, Stewartville and Byron have adopted since 2009, the South Zumbro Watershed Improvement Program, Stormwater Pollution Prevention Programs of Rochester, Olmsted County and Mn/DOT, the Rochester Active Living Initiative, and the increasing use of multi-disciplinary planning projects including such studies as the Mayo Medical Center Master Plan, the Downtown Rochester Master Plan, and the Alternative Urban Areawide Review processes used for in the Marion Township and Elk Run development areas.

The ROCOG Environmental Justice strategy is also summarized in this chapter, though the full plan is published as a separate report available under separate cover. The goal of the environmental justice process is to identify situations where disadvantaged populations may be disproportionately impacted by transportation projects or new services, and identification of opportunities to mitigate or minimize that impact.

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Chapter 14

Introduction

Transportation Demand Management (TDM) measures came into use in the Rochester area in response to a need to improve air quality, reduce peak period congestion and reduce the demand for off-street parking in downtown Rochester. TDM strategies utilized in the region have focused on alternates to single occupant vehicle use for commuting during peak travel periods. Carpooling, vanpooling, subsidies for transit use, pricing of parking and measures to encourage walking or biking to work have been utilized.

Additional non-travel measures that have become part of the TDM toolbox with success have included job related measures such as flextime, compressed workweeks and telecommuting.

Among the key benefits of incorporating TDM measures into the daily mix of transportation services is the ability to make more effective use of available road capacity while minimizing the need for expansion. The expansion of transportation infrastructure for vehicular travel, whether in terms of vehicle moving capability or vehicle storage, is expensive, and usually lags behind growth. By utilizing TDM effectively to complement private vehicle travel, the existing transportation system can support a higher density of development, which is especially critical in the downtown area or other major activity centers where large numbers of persons congregate for work or other reasons.

As communities such as Rochester continue to grow, travel demand will need to be accommodated by a combination of travel options, including not only road improvements but transit service improvements, bicycle and pedestrian improvements and programs to reduce travel coupled with appropriate land use planning. Promoting greater use of non-vehicular travel modes will be particularly critical for the continued health and vitality of the downtown area of Rochester and is a key recommendation included in the 2010 Rochester Downtown Master Plan and Destination Medical Center Development Plan.

Existing TDM programs currently being used in the Rochester area are summarized in the next section. Recommendations for expanding the effectiveness of TDM to manage travel demand follow. In the second part of the chapter, concerns related to the impact of transportation on sustainability are discussed, with local initiatives or programs that complement sustainability and TDM efforts reviewed. The chapter finishes with a discussion of additional strategies that could be considered to expand the benefits of TDM and enhance the sustainability of the transportation system.
**Existing Rochester Area TDM Initiatives**

Table 14-1 provides a review of existing TDM initiatives and programs currently active in the Rochester area. TDM initiatives in the Rochester area generally fall into one of three categories and include both formal and informal efforts aimed at reducing the level of vehicular travel. These categories include:

- **MEASURES TO PROMOTE ALTERNATIVES TO THE AUTOMOBILE** by encouraging persons to switch to other modes of travel such as transit, bicycles, or walking
- **MEASURES TO ENCOURAGE MORE EFFICIENT USE OF AUTOMOBILES AND ROADS** by shifting demand patterns or occupancy patterns
- **DISCOURAGE USE OF THE AUTOMOBILE** by making their use more costly or more difficult

**Table 14-1: TDM Strategies utilized in the Rochester area**

<table>
<thead>
<tr>
<th>TDM Measure</th>
<th>What is currently done</th>
<th>Planned or Potential Enhancements</th>
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</table>
| Park-and-Ride Service| City of Rochester has organized a series of park and ride lots throughout the city along existing transit routes to permit downtown workers to park outside of downtown and ride the bus into downtown. Approximately 500 individuals per day utilize five existing city park and ride lots, and an additional number, estimated at approximately 1600 persons per day, utilize Mayo Clinic park and ride facilities.  
MnDOT District 6 in cooperation with small cities throughout the region has established a series of park and ride lots along state highways that are used primarily as carpool nodes and in some instances as commuter bus service pick up points.  
(NOTE: See Chapter 3 for further info on existing park and ride facilities) | City of Rochester plans to continue development of park and ride lots in the future, preferably as part of joint use development projects. A location on TH 52 North at 75th St NW is currently under development. Other potential corridors of interest include TH 14 West and TH 63 South.  
Continued northward expansion of freeway design on TH 52 through Oronoco and Pine Island presents opportunity to consider additional MnDOT regional park and ride development at selected interchange locations along the corridor. |
<p>| Shuttle Lots and Shuttle Buses | Mayo Medical Center operates shuttle lots for employees on 2nd St SW west of TH 52 and on the Fullerton Lot southeast of the Central Business District off 4th St SE. Shuttle buses circulate during peak shift change periods to shuttle employees to and from lots. Employees can also park at Mayo’s Northwest Service Center located on West Circle Dr at 41st St NW and use an employee | There is community interest in enhancing downtown shuttle services in the long term through possible development of some type of circulator service linking Mayo Medical Campus, Mayo Civic Center and other downtown destinations. The 2011 Downtown Master |</p>
<table>
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<tr>
<th>TDM Measure</th>
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<tr>
<td>Shuttle to downtown.</td>
<td>Mayo also operates frequent employee and patient shuttle between the downtown Mayo campus and St. Mary’s Hospital campus on 2&lt;sup&gt;nd&lt;/sup&gt; St to accommodate the daily demand for movement of staff and patients between these sites and in turn reduce congestion on 2&lt;sup&gt;nd&lt;/sup&gt; St SW.</td>
<td>Plan suggested short term redesign of the fixed route transit system to provide more frequent service on the 2&lt;sup&gt;nd&lt;/sup&gt; St corridor as a short term strategy; longer term, consideration of some type of downtown circulator is suggested, and there is interest in some quarters for considering Automated People Mover (APM) technology to enhance downtown mobility.</td>
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<td>Pedestrian Improvements</td>
<td>Downtown Skyway / Subway system ties together over 20 blocks of Mayo Medical Campus with the Central Business District, Mayo Civic Center and downtown parking ramps to provide weather protected pedestrian travel between major destinations uninterrupted by vehicular traffic.</td>
<td>A limited number of skyway/subway extensions are expected in the future which will extend system to serve more of core area as well as to lengthen its reach throughout the downtown Mayo Medical campus.</td>
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<td>Rochester completed a project in 2012 to improve the Downtown Bus Transfer area with wider sidewalks, improved shelters, intersection bulb-outs to shorten crossing distances and streetscaping improvements in order to improve the pedestrian environment in the core high intensity area of along 2&lt;sup&gt;nd&lt;/sup&gt; St between Broadway and 6&lt;sup&gt;th&lt;/sup&gt; Ave West.</td>
<td>A program to install bike racks on buses has been completed and all vehicles are outfitted with racks. All new buses are equipped with bike racks. Plans include continued requirements for bike racks on new buses and increased</td>
<td>Community input has also identified secure bicycle storage in downtown as another enhancement that would improve the desirability of cycling as a potential utilitarian travel mode. The ROCOG Bicycle-Pedestrian Advisory working with the city of Rochester continues to implement a Business Bicycle Rack program, where interested businesses are provided equipment and</td>
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### TDM Measure

<table>
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<tr>
<th>TDM Measure</th>
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<tr>
<td><strong>Promotion</strong></td>
<td>promotion through promotional materials and consumer training and awareness campaigns</td>
<td>financial assistance for installing bicycle racks. <strong>Implementation strategies also call for working with employers, building on efforts such as the Mayo Bicycle Commuter Mentorship initiative, to draw more individuals to consider alternative modes of travel</strong></td>
</tr>
<tr>
<td>Rochester adopted a Bikeway Master Plan in 2012 that included recommendations for creating a broader connected network for travel to major downtown destinations and across downtown.</td>
<td>The 2012 Downtown Master Plan included preparation of a Bicycle Action Plan that identified 29 strategies for improving conditions for cycling in the Rochester CBD. The recommendations included: 1) establishment of bike routes on strategic low volume streets; 2) bike lanes in selected locations where roadway width is available; 3) installation of destination amenities such as covered parking at key destinations; 4) supportive programs such as Bike to Work events; 5) minimum bicycle parking requirements; and 6) safety improvements at critical intersections.</td>
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<tr>
<td>Currently there are the bike parking locations in the CBD, six downtown and four at St. Mary’s Hospital, involving a mix of outdoor and weather protected facilities. All municipal owned parking ramps downtown include space devoted to bike parking, and an initial set of six bicycle repair stations have been installed at strategic locations downtown and along the trail network to aid cyclists.</td>
<td>A Bike Share Feasibility Study was undertaken in 2013 to determine the demand and potential utilization of a bike share system. The conclusions of the study identified bike system connectivity issues that may limit the use and coverage of such a system at this time, though demand in the core area of Rochester would likely be sufficient to support a small start-up system.</td>
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Chapter 14

TDM and Sustainability

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<tr>
<th>TDM Measure</th>
<th>What is currently done</th>
<th>Planned or Potential Enhancements</th>
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<tbody>
<tr>
<td>Home Program</td>
<td>or walk to work. This program allows employees to take a free taxi ride home for family emergency purposes or due to illness. Employees asked to work beyond their scheduled time may use this service as well. This service may be used up to four times per year by an employee.</td>
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<tr>
<td>Carpool</td>
<td>The Mayo Clinic encourages carpooling as a way to decrease employee parking demand. Incentives include preferential on-site parking at the Baldwin Ramp (downtown location), increased fuel and vehicle cost savings, and the ability to use the Guaranteed Ride Home program.</td>
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<tr>
<td>Ride Sharing</td>
<td>The City has maintained a ride matching service for over 20 years though it is of limited use. Extensive expansion of the regional commuter bus service to almost 40 outlying communities is thought to have greatly decreased the demand for ride matching as well as reducing the pool of individuals who would consider ride sharing.</td>
<td>A real increase in demand would require a new software program to facilitate ride share matching</td>
</tr>
<tr>
<td>Staggered Work Shifts</td>
<td>The two largest employers in the City of Rochester, the Mayo Clinic and IBM (located in northwest Rochester) spread out start times of employees in order to help alleviate peak period, localized traffic congestion.</td>
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Management of parking demand involves the use of a combination of strategies targeted towards making the most efficient use of parking resources and minimizing the need to develop additional off-street parking facilities. Strategies include differential parking pricing, targeted parking for employees and pricing favoring short-term parkers such as customers over long term parkers such as workers at the most desirable downtown locations. Parking management is most critical in the central area of Rochester, where the travel demands of high daytime population levels must be balanced with other community goals targeted at maintaining a vibrant core area.

Periodic studies of downtown parking needs are conducted to manage the timing of major investments and insure that a balance is maintained between parking supply and demand. Table 14-2 on the following page summarizes the current parking inventory and specific actions the City of Rochester and the Mayo Medical Center (the largest generator of parking demand in downtown Rochester) utilize to achieve a balance between parking supply and demand.
### Table 14-2 Parking Demand Management Strategies Utilized in Rochester

<table>
<thead>
<tr>
<th>Parking Management Measure</th>
<th>Inventory Conditions</th>
<th>Pricing or Supply Philosophy</th>
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</thead>
<tbody>
<tr>
<td><strong>On Street Parking</strong></td>
<td>There are currently approximately 1260 on-street metered parking spaces in downtown Rochester. Location and time restrictions vary, as shown in Figure 14-1 on page 14-9. Rates range from $0.50 for 30 minute meters, to $0.25/hour for 10-hour meters. The 90-minute, 2-hour and 3-hour meters charge between $0.70 and $1.00 per hour. Utilization rates are high, averaging 82%.</td>
<td>City of Rochester uses a differential parking rate structure to encourage preservation of core area on – street and ramp parking for customers, clients and other short-term needs of businesses and attractions in the CBD. Lower daily and monthly rates are available in lots located on the fringe of the CBD targeted to employee parking needs.</td>
</tr>
<tr>
<td><strong>Off Street Parking</strong></td>
<td>Off Street parking is provided in a combination of parking ramps and surface lots. There are approximately 12,800 off street parking spaces managed by the Mayo Clinic, representing approximately 82% of the downtown off street inventory. These spaces are roughly evenly divided between spaces in ramps and spaces in surface parking lots. Utilization rates average about 95% in Mayo facilities. Approximately 17% of the inventory is managed by the City, including approximately 2600 spaces in 5 ramps with utilization rates ranging from 84% to 91%. Surface parking lots consume a significant share of downtown real estate as shown in Figure 14-1. The city has approximately 1100 spaces in surface lots that it manages, with utilization rates varying from 33% to 90%.</td>
<td>Mayo parking management principles include providing adequate parking to meet patient / visitor demand in close proximity to clinic and hospital facilities and also to provide convenient, close-in parking for staff doctors and residents. Approximately 1400 spaces are provided downtown for this purpose. For the remainder of the employees, Mayo strives to meet a ratio of approximately having three spaces available for every five employees, and to encourage alternatives to driving to reduce parking demand. Approximately ½ of these spaces are provided downtown while the remainder are located at St Mary’s Hospital or remote support facilities outside of downtown.</td>
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</table>

The Rochester Downtown Master Plan identified for consideration significant changes in parking pricing and availability in order to manage downtown parking demand and encourage alternative modes of travel for trips to the CBD. Among the strategies the study is recommending for consideration include the use of demand based pricing for the most valuable on-street parking, management of ramp rates to reflect demand using 85% occupancy as a target rate, incentives for developers to unbundle parking from residential and commercial development, a downtown-wide employee transit pass program, and implementation of a parking cash-out program.
Figure 14-1: On and Off Street Parking in Downtown Rochester
Transportation and Sustainability

In recent decades society has identified a number of strategic challenges to the long term health and livability of our communities which, if left unaddressed, pose potential risks to our environment, economy and the standard of living we have come to expect. These strategic challenges reflect rising concerns on a number of fronts: the potential of impacts of climate change, the desirability of greater energy independence, the need to conserve natural resources, the desire to provide every family the opportunity to live in safe and affordable housing, disconcerting trends in public health, and a desire to treat individuals equitably.

Leaders recognize that these seemingly disparate issues are linked and addressing these issues is at the heart of sustainability planning. When local governments bring their services, land use, and infrastructure in line with sustainability principles, there is the potential to achieve broad benefits across these areas for their communities. Utilizing sustainability principles in community planning efforts, including in transportation planning, is one means for improving quality of life for all community members.

Transportation influences the development of livable communities and success in meeting sustainability goals because of its pervasive importance in many of the activities that people undertake. Transportation influences access to opportunities (whether for work, recreation, or education), the safety and security of individuals, the long term adequacy of natural resources, and the overall quality of life experienced in a community. A sustainable transportation system is one that:

- allows the basic access and development needs of individuals, companies and society to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations.

- Is affordable, operates fairly and efficiently, offers a choice of transport mode, and supports a competitive economy, as well as balanced regional development.

- Limits emissions and waste within the planet’s ability to absorb them, uses renewable resources at or below their rates of generation, and uses non-renewable resources at or below the rates of development of renewable substitutes, while minimizing the impact on the use of land.

Many political leaders and many transportation organizations have acknowledged the need to change current transport planning practices to incorporate sustainability objectives. For example, the American Association of State Highway & Transportation Officials (AASHTO) wrote in its recent report Transportation: Invest in Our Future that “transportation decision makers need to adopt a so-called “triple bottom line” approach to sustainability, evaluating performance on the basis of economic, social, and environmental impacts and allocating equal consideration to each these driving forces.” The steps suggested to achieve this vision were summarized in the report as follows:

- Deliver a sustainable, high-performance transportation system in support of a robust economy by first optimizing existing infrastructure, then reshaping demand, and lastly expanding judiciously.
• **Enhance quality of life by integrating transportation with the built environment** by using the full tool kit, including context sensitive solutions, land use policy, and diversified mode choice.

### Sustainability Issues

Numerous impacts of transportation demonstrate the challenges faced in transitioning to a sustainable transportation system. Table 14-3 lists the major impacts of transportation related to the three key pillars of sustainability. A brief overview of some of the key impacts follows below. These issues have been investigated by many parties and reflect a wide range of concerns.

#### Table 14-3: Impacts of Transportation

<table>
<thead>
<tr>
<th>Environment</th>
<th>Economy</th>
<th>Social / Equity</th>
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<tbody>
<tr>
<td>Energy Use</td>
<td>Access to Jobs</td>
<td>Mobility Choices</td>
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<td>Pollution</td>
<td>Economic Resiliency</td>
<td>Healthy Choices / Effects of</td>
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<tr>
<td>Air Quality / Noise / Water</td>
<td>Households / Gov / Business</td>
<td>Community Design</td>
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<tr>
<td>Climate Change</td>
<td>Resource Efficiency</td>
<td>Community legacy</td>
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<tr>
<td>Ecosystem Damage</td>
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#### Energy Supply and Insecurity

The current transportation system relies heavily on nonrenewable fossil fuels. Oil accounts for more than 95% of all the energy used for transportation in the United States, and while vehicles miles of travel declined by 5-8% during the Great Recession, the decline in fossil fuel used for transportation during the same period was approximately half of that rate (3.5%-4.5%). While the rate of consumption of nonrenewable fuels in the United States is projected to decline, growth elsewhere is anticipated to increase, which along with rising production costs will likely limit any future decrease in the fuel costs. This is likely to happen even though the share of oil produced domestically has risen from 40% to about 60% of the supply (Figure 14-2).

Energy visions for the future suggest that technology will come to the rescue and provide alternative fuels to supplement the gasoline or diesel powered internal combustion engine. Cleaner burning fossil fuels, including natural gas, are typically seen as the bridge that will get society to non-polluting vehicles such as electric cars.

The issue to consider relative to energy supply is the importance that price (and indirectly supply) changes might have on reshaping the way transportation systems need to function in the next 20-30 years. Will the premium on mobility continue to be the driving force, suggesting that while the fuel source may change, the travel system will essentially remain unchanged? Or will increases in energy prices drive demand for better alternative services?
There is a connection between energy costs and land use decisions. While energy availability and pricing are volatile and dependent on changing political and economic factors, the built environment, such as buildings and infrastructure, cannot adjust easily to energy changes. The challenge will be finding ways to reduce the rate of consumption should the cost of fossil-fuel driven transportation begin to create a significant drag on the economy or household budgets. In addition to development of renewable energy sources and improved energy efficiency of vehicles, increased use of alternative modes of transportation or reducing the need to drive through compact or transit-oriented development patterns, in conjunction with transit-focused transportation investment strategies, would allow people to drive less if they choose, resulting in reduced vehicle fuel use.

**Greenhouse Gas Emissions & Climate Change**

Scientific evidence suggests that the activities of man are altering the composition of the atmosphere and contributing to climatic changes which have the potential to create significant impact to various ecological and man-made systems. The atmospheric alterations of greatest concern are increases in the level of various greenhouse gases such as carbon dioxide, ozone and nitrous oxides. While scientific consensus seems to be emerging about the presence of atmospheric warming due to increased levels of greenhouse gases, there still is uncertainty that has not been fully reconciled by the scientific community. However, the impacts that have been predicted, including more intense weather activity resulting from an overall warming of the atmosphere, appear to be surfacing.

The primary sources of these increased emissions are systems of power generation, both for electricity and for transportation. In Minnesota, electrical power generation contributes about 32% of greenhouse gas emissions, and surface transportation about 24%, although both sectors saw a decline between 2005 and 2010 in absolute emissions on the order of about 10% (Figure 14-3). As a share of overall emissions (greenhouse gas plus air toxics), latest data indicates transportation sources are estimated to account for approximately 56% of emissions, including highway travel, 1/3rd of non-point source pollution and 10% of off-highway equipment.
Among the responses that have been identified to address greenhouse gas emissions from the transportation sector include improved energy efficiency (more output with less fuel), carbon taxes (reflecting the full costs of transportation in the price), promotion of alternative fuel vehicles (support use of fuel systems that create less of the greenhouse gases per unit of travel), promotion of alternative modes of travel (use fuel more efficiently) and reducing the demand for travel (reducing the number, length or mode of trips).

Management of greenhouse gas emissions has garnered much legislative attention in recent years. Governors of ten Midwestern states signed the Midwest Governor’s Accord on Greenhouse Gas Emissions in 2007 aimed at reducing greenhouse gas emissions. Governor Pawlenty in 2007 signed the Next Generation Energy Act, which sets a goal of reducing statewide GHG emissions by at least 15% by 2015. Governor Pawlenty also appointed a Climate Advisory Group to develop a comprehensive plan to reduce Minnesota’s GHG emissions in 2007. This group issued a report in 2008 which included a number of recommended strategies for reducing transportation related emissions, as highlighted in Figure 14-5.

**Pollution**

Primary transportation-related pollution concerns include noise pollution, water pollution and air quality degradation. While noise pollution generally is a project or location-specific issue, water pollution and degradation of air quality are more prone to create system-level effects where the overall management of the transportation system can play a role in reducing impact.

In the area of air quality, Minnesota and the MPCA have had great success in decreasing the emissions and concentrations of many traditional air pollutants since the Clean Air Act was enacted in 1970. However, increased health concerns and stricter standards for many of these traditional air toxics means that an increased focus on more disperse sources of air pollution such as transportation and residential...
burning may be needed. As illustrated in Figure 14-6\textsuperscript{vi}, while the concentrations of specific pollutants has been declining, there has been a trend showing an increase in the number of days in which air quality conditions are unhealthy for sensitive groups, such as asthma sufferers. Better understanding and management of the health and environmental effects of exposure to multiple pollutants and sources is needed to further improve the impact of air quality on Minnesotans’ quality of life.

As quoted from March 9, 2009 issue of the Rochester Post Bulletin, “There is a debate going on about the quality of Rochester’s air, and the shorthand version goes something like this:

“Rochester’s air quality leaves a lot to be desired. Its quality is similar to that of the Twin Cities, even though Rochester’s population is at least one-sixth the size of the Twin Cities. And its incidence of asthma is 25 to 30 percent larger than any other part of the state, including the Twin Cities.”

“Yes, Rochester’s air quality shares similarities with the Twin Cities, but you have to look at the larger picture. Both Rochester and the state are in compliance with federal air quality standards. In fact, Minnesota is one of only 10 states to be in such good standing. And the American Lung Association gives Olmsted County a B for fine particle emissions, a pollutant of most concern in Rochester.”

But for some sensitive groups, such as those with asthma or other respiratory conditions, the risks are higher. At the heart of the debate is the meaning of data collected by the MPCA. Data each day is collected in nine regions, including Rochester, which are graded on their air quality based on the concentration of fine particles and smog with grades ranging from Good to Very Unhealthy for Sensitive Groups. What those values have shown is that while there has been improvement in recent years, Rochester has historically seen a higher level of Moderate or High Alert days than any monitored area in the state except for the Twin Cities. Data for the Rochester area, illustrated in Figure 14-7\textsuperscript{vi}, indicates Rochester historically has had fewer good air quality days than similar sized metros such as St. Cloud or Duluth and far more “moderate” days, although 2012 represented a significant shift from that pattern. As noted by past director of environmental health for Olmsted County Rich Peter, “I think that we have need to keep an eye on this, particularly for those people who have any kind of compromised cardiovascular system as well as lung capacity.”

![Trends of Key Air Pollutants in Minnesota](image-url)
Community Design and Health

Recent increases in obesity (Figure 14-8vii) and related chronic diseases have spurred investigation into the role of the built environment in population health. Recent research has established a link between automobile-oriented development patterns and the rise of obesity, respiratory illnesses, and other chronic diseases. Medical research (CDC, 2009) has shown that as little as 30 minutes per day of moderate exercise like walking, several times per week, can reduce obesity and improve health. Other recent research has demonstrated that compact, connected development patterns in a region can increase overall activity levels.

Policies that offer more transportation options can have a positive effect on increasing opportunity for physical activity. The evidence has found connections between the built environment and physical
activity and outcomes related to obesity, air and noise pollution exposure, traffic crash risk and water quality. In general, a planning and development approach that concentrates growth and creates mixed use area and pedestrian-friendly neighborhoods has been found to be associated with improved health outcomes in many of these impact areas, particularly in terms of the levels of physical activity, obesity and associated health conditions.

There is considerable debate in the literature over the strength of many of these relationships and if in fact there is a causal connection between the design of the environment and our health. However, in spite of the uncertainties, at the federal and state level there has been public policy support for increasing transportation options. The USDOT in March of 2010 issued a policy statement clarifying that it is DOT policy to incorporate safe and convenient walking and bicycling facilities into all transportation projects. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — the DOT encourages transportation agencies to go beyond minimum standards to provide safe and convenient facilities for these modes. The Centers for Disease Control and Prevention (CDC) and the American Public Health Association have also issued recent reports stating that transportation policies can have profound positive impact on health. The CDC report and the APHA report identify a number of strategies that support the development of a balanced portfolio of transportation alternatives in support of the following goals:

- Reducing injuries associated with motor vehicle crashes
- Promoting safe and convenient opportunities for physical activity through active transportation infrastructure
- Reducing human exposure to air pollution and adverse health impacts associated with these pollutants
- Ensuring that all people have access to safe, healthy, convenient, and affordable transportation

**Ecosystem Damage**

Transportation activities can harm biological resources. The effects can range from the death of individual animals to the loss of critical habitat. Some impacts are localized, such as disruption of migration patterns or runoff that pollutes rivers and streams. Other impacts can be more profound, such as fragmentation and loss of species and long-term damage to ecosystems. Significant improvements have been made in the recent past with regard to understanding the effects of transportation on ecosystems and implementation of measures to reduce impact. For example, mitigation requirements for highways and maintenance garages have greatly reduced runoff impacts. As population and travel volume increase, a continuous effort must be made to maintain and build on areas of success. One area of emphasis in federal guidance on transportation planning has been to consider system-level as opposed to project level impacts of transportation.

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2 CDC Recommendations for Improving Health through Transportation Policy, Center for Disease Control and Prevention, April 2010, available at http://www.cdc.gov/transportation/docs/FINAL%20CDC%20Transportation%20Recommendations-4-28-2010.pdf

3 The Hidden Health Costs of Transportation, Urban Design 4 Health for the American Public Health Association, February 2010
**Fiscal Implications of Transportation for Households**

Another issue reflecting on the effect of transportation on social and economic concerns is the fiscal impact of transportation on households and businesses. Trends indicate that providing mobility is costing households & businesses an increasing share of income. Figure 14-10 illustrates comparative trends in housing and transportation costs (H+T) for a typical household compared to growth in income. The overall H+T cost burden approaches 50% on average for a typical household nationally, and strikes lower income households to a greater extent. If the middle class is to prosper, attention must be given to strategies that can reduce the H+T burden on lower income households.

The Center for Neighborhood Technology (CNT) and the federal Partnership for Sustainable Communities led by the U.S. Department of Housing & Urban Development (HUD) have developed tools to assess H+T costs on households. CNT has developed an interactive web site which presents data on H+T costs for urban areas across the country. HUD and its partners have developed the Location Affordability Index which estimates the percentage of a family’s income dedicated to H+T costs for eight different family profiles defined by household income, size and number of commuters based on typical values of these within a metro area, county, state or zip code area.

These H+T measures present a more complete measure of affordability beyond the standard method of assessing only housing costs. By taking into account both housing as well transportation costs associated with the location of the home, H+T provides a more complete understanding of affordability. While housing alone is traditionally deemed affordable when consuming no more than 30% of income, CNT has defined an affordable range for H+T as the combined costs consuming no more than 45% of income. CNT estimates for Olmsted County that near 50% of households in the county may exceed the 45% threshold, as shown in Figure 14-11. Using HUD data for Olmsted County, the illustrations in Figure 14-12 on the next page illustrate the H+T cost burden for two family profiles included in the HUD model, those of a typical regional household (upper graphic) and a dual earner household (lower graphic).

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4 The CNT website address is [http://htaindex.cnt.org/](http://htaindex.cnt.org/)
5 The Location Affordability Portal website address is [http://www.locationaffordability.info/lai.aspx](http://www.locationaffordability.info/lai.aspx)
Figure 14-12

**Regional Typical**

- **$62,395** annual income
- **2.48** people
- **1.26** commuters

View in My Transportation Cost Calculator

Average costs as a percent of income in this location for Regional Typical Households:

- Housing: 25% ($16,599)
- Transportation: 18% ($11,231)
- **Location Affordability: 43% ($26,830)**

On average, Regional Typical Households in this location would:

- Own 1.9 vehicles
- Drive 21,215 miles annually
- Take 28 transit trips annually

**Dual-Income Family**

- **$93,593** annual income
- 4 people
- 2 commuters

View in My Transportation Cost Calculator

Average costs as a percent of income in this location for Dual-Income Family Households:

- Housing: 18% ($16,847)
- Transportation: 16% ($14,976)
- **Location Affordability: 34% ($31,822)**

On average, Dual-Income Family Households in this location would:

- Own 2.5 vehicles
- Drive 28,609 miles annually
- Take 11 transit trips annually
Addressing Sustainability in the ROCOG Area

There are a variety of means for improving the local transportation system to improve sustainability at the state and regional level. The following section reviews existing programs that have been established, while the final section of the chapter reviews additional measures that could be considered by ROCOG and its partners to reduce the footprint of transportation and improve the long term sustainability of the transportation system.

Current State Level Initiatives

Minnesota Complete Streets Policy

In 2009 the Minnesota Legislature passed and Governor Pawlenty signed Complete Streets legislation requiring the Commissioner of Transportation to implement a complete streets policy for application to all projects funded partially or wholly by the state. Based on the recommendations of a Complete Streets Feasibility Study completed in December of 2009, Mn/DOT has implemented and continues to work on changes to the State Aid project approval process to permit consideration of Complete Street features, has provided support for local communities wishing to enact Complete Streets regulations, has begun consideration of revisions to state and local design manuals to support Complete Streets, and has incorporated consideration of complete street principles into planning and project development processes. In the Rochester area, the first use of Complete Street principles was on the design of the 12th St South reconstruction project constructed in 2011.

State Conservation Plan

The Minnesota State Conservation Plan includes recommended policies to address the impact of surface transportation development on the critical resources of the state. The report contains three recommendations that outline a near-term strategy with long term effects to integrate transportation system development more effectively with other statewide and local planning and decision-making. These are:

- **Recommendation 1:** Align transportation planning across state agencies and integrate transportation project development and review across state, regional, metropolitan and county/local transportation, land use and conservation programs.
- **Recommendation 2:** Reduce per capita vehicle miles of travel (VMT) through compact mixed-use development and multi- and intermodal transportation systems.
- **Recommendation 3:** Develop and implement sustainable transportation research, design, planning, and construction practices, regulations, and competitive incentive funding that minimize impacts on natural resources, especially habitat fragmentation and non-point source water pollution.
The report goes on to outline an extensive list of detailed steps that should be considered by state, regional and local authorities to provide for greater integration of transportation planning and project development activities with environmental and resource planning activities at various levels of government. Greater coordination and collaboration between agencies and jurisdictions, and alignment of standards and guidelines is recommended in the plan.

**ROCOG Area Initiatives**

**Complete Streets Policy**

In 2009 the City of Rochester adopted a Complete Streets policy. The policy provides that appropriate bicycle, pedestrian and transit facilities shall be included in street construction, reconstruction, repaving and rehabilitation projects except where the project involves only ordinary maintenance, where it is determined that there is insufficient space to safely accommodate all facilities, where a determination is made there are high safety risks to a particular mode of travel, or where, due to excessive and disproportionate cost of implementation or significant or adverse environmental impact, it is determined that complete streets improvements cannot be accommodated.

Complete Streets improvements are now considered early in the project development process through annual joint meetings involving Public Works and ROCOG staff to review options for multi-modal corridor accommodations. The feasibility report that goes to the City Council ordering a project includes documentation of compliance with the Complete Streets policy.

**Rochester Active Living**

Under a grant funded by Blue Cross Blue Shield of Minnesota the City of Rochester established the Active Living Rochester initiative to develop a program that would increase opportunities for residents to incorporate physical activity into their daily routines. This initiative led to the development of amendments to the Rochester Land Development Manual and the Comprehensive Plan of the city that modified the “tone” of review criteria and development policy to incorporate consideration for walking, biking and transit in all development review. This initiative also led to development of a Pedestrian Oriented Commercial District which would provide a zoning framework and incentives for developers to construct pedestrian friendly commercial development.

As part of its future commitment to Active Living and Complete Streets principles, the city will continue to look at strategies to advance the principles adopted in the Active Living initiative. An interdisciplinary partnership has been created to support additional Active Living work in Rochester that includes Mayo Clinic/CardioVision 2020, Rochester Public Works, Olmsted
County Public Health and the Rochester-Olmsted Planning Department. Together, this interdisciplinary Partnership will lead efforts in the community to support an active living community.

Figure 14-15 highlights the vision and key strategies which the partnership will pursue in advancing the cause of Active Living Rochester in the future. Among the actions that have been completed in the last two years include:

- Pedestrian facility gaps in low income areas of the City were mapped. A Community Development Block Grant was awarded in 2013 to begin work on addressing the needs identified.

- CardioVision 2020 has been moving forward to develop a web based resource to support healthy living. The partnership has been collaborating on this effort, building the web content, appearance and resources.

- A grant was secured to fund development of campaign materials to promote the safe sharing of road space among pedestrians, bicyclists and motorists. A communication consultant was selected to develop campaign materials which were deployed in 2011 and again in 2013.

Moving forward, the Active Living Partnership looks to expand number of community partners and include representation of immigrant and minority populations, youth, seniors, and/or populations at higher risk of experiencing health disparities. Work will also continue on increasing the supply of bikeable/walkable infrastructure, safety education & promotion campaigns, and to build support for
Pedestrian-Friendly & Active Living Friendly design including mixed-use and compact development with a walk/bike/transit orientation.

**Rochester Downtown Master Plan / Downtown Mobility Plan**

In 2009 a collaborative of the City of Rochester, the Mayo Clinic, the University of Minnesota Rochester, the Rochester Downtown Alliance, and the Rochester Area Foundation came together to facilitate a master planning process to provide a framework for the sustainable development of downtown Rochester over the next twenty years or more.

The specific mobility objectives of the Downtown Master Plan / Mobility Plan include:

- **Facilitate the ongoing development of downtown by ensuring access for employees, residents, visitors and customers.**
- **Increase modal options for people traveling to and within downtown.**
- **Improve connectivity to adjacent neighborhoods and within downtown.**
- **Increase transit capacity while reducing negative impacts on street life.**
- **Ensure all street users feel and are safe.**
- **Improve connections between transportation modes and systems.**
- **Improve legibility of all transportation systems, particularly at connection points.**

The downtown transportation system is likely in future years to become the fulcrum on which multimodal transportation development and transportation demand management efforts in the City of Rochester rest. The presence of a large downtown employment base more typical of that found in larger cities, and continued growth spurred by expansion of the Mayo Clinic and establishment of a downtown university center eventually supporting 5000 students, will require some fundamental changes in the way access to and mobility within downtown Rochester is provided.

Among the key recommendations of the Mobility Study that will shape future downtown transportation and the system funneling traffic to downtown destinations include:

- **Establish a goal to increase the share of commute trips by alternatives modes from 29% to 40% by 2020 and 50% by 2030.**

- **Increase the share of non-commute downtown trips by alternative modes from 10% to 30% by 2030.**
- Implement demand based pricing for downtown on-street parking to achieve a consistent 85% utilization rate, and eliminate time restrictions on parking once the pricing has been calibrated. This should discourage long term parkers from using on-street spaces and consistently ensure that at least one parking space is available per block to deter circling to find on-street parking.

- Establish an 85% utilization target for off-street parking also, manage parking rates according to demand, revise codes to eliminate minimum parking requirements and provides developers incentives to unbundle parking from residential and commercial development. *The first two downtown residential apartment developments to unbundle parking were approved by the City in 2014.*

- Implement a bicycle parking plan including requirements for new development

- Work with key downtown partners to develop a Transportation Management Association. *A draft Organizational and Business Plan was created under a consultant contract in 2012 but implementation was delayed by a decision to await completion of the Destination Medical Center Plan.*

- Consider using a part of parking revenues to subsidize a downtown employee transit pass program

- Work with the Mayo Clinic (the downtown’s largest employer with 30,000 employees) to aggressively manage parking and promote TDM strategies. *This work is ongoing and with future action related to the Destination Medical Center is expected to expand*

- Repurpose downtown street corridors to create various street typologies including traffic streets, Main Street/Pedestrian Streets, Complete Street/Bicycle Streets and Transit Mobility Streets. *Initial projects on different sections of 2nd St SW were completed in 2012, 2013 and 2014 with Broadway Avenue currently in the early planning stages.*

- Enhancing the pedestrian environment on key targeted streets (beyond the Main Street / Pedestrian Street corridors) where high pedestrian volumes and business vitality are key considerations. *Work has been completed at some key high volume intersection crossings including installation of countdown timers, installation of Pedestrian triggered signal at 3rd St and Broadway Ave, and prohibitions of right turn on red at selected locations.*

- Plan for a doubling of trips by transit, which will require a fundamental redesign of the bus system to provide high frequency service on designated Transit Mobility Streets, with eventual development of a downtown streetcar circulator serving the 2nd St SW corridor and potentially a north-south corridor streetcar linking to future high speed rail station north of downtown.
2nd St Framework Study

The 2nd St Framework Study completed in 2009 (Figure 14-16) complements the Downtown Master Plan by creating a guide to manage future growth within a key downtown gateway connecting the downtown medical area with the St Mary’s Hospital Campus west of downtown.

Transportation related objectives identified in this study included:

- **Improve the pedestrian and bicycle experience to and within the corridor by creating a pedestrian-friendly streetscape and by strengthening the pedestrian connections between nearby points of interests: neighborhoods, recreational trails and open spaces, and downtown.**

- **Improve the bus system service for those living, working, and traveling in and through the corridor**

- **Safely manage the movement of vehicles to destinations in and through the corridor.**

- **Seek opportunities to consolidate parking, access and servicing**

Reconstruction projects in 2011-2013 on segments of 2nd St have implemented this vision. Remaining segments of 2nd St, particularly from 11th Ave SW to TH 52, are targeted for reconstruction in the near future. The long-term strategy, as the city grows and evolves, is to transition Second Street into a multi-modal corridor serving a future “Urban Village” style of development and the downtown with transportation choices including improved bus facilities, pedestrian and bicycle facilities, and a fixed rail streetcar system.

Communities Putting Prevention to Work (CPPW) ARRA Grant

Olmsted County received funding as part of federal Communities Putting Prevention to Work grant in 2009 to support activities including initiatives to increase levels of physical activity among school age children in an effort to decrease the prevalence of obesity. Among the strategies to be implemented during this multi-year program include:

- **Develop a plan to enhance, link and improve safety in parks and on trails and bikeways**

- **Implement Walking School Buses as part of a Safe Routes to School project at elementary schools in the schools districts in Olmsted County outside of Rochester**

The CPPW has been supplemented by subsequent Safe Routes to School grants that have continued to address safety of school travel and encouragement programs aimed at both elementary and middle school students.
South Zumbro Watershed Stormwater & Transportation Management Plan:

The SZWS is a watershed-based plan that integrates storm water management with transportation planning to address the problem of bridges historically being designed to pass flows quickly downstream—a practice that results in hydraulic overloading, channel instability, degradation of recreational waters, and diminished wildlife habitat. This plan was completed in 2003 for the purpose of promoting the integration of multi-agency surface water management objectives with the planning, design and programming of improvements to the transportation related drainage network, including work bridges, culverts and ditch improvements. The plan covers an area of 297 square miles in the Zumbro River watershed in Olmsted and Dodge Counties as illustrated in Figure 14-17.

This plan identifies targeted strategies to protect watersheds and investment in roadway infrastructure by:

- Encouraging the protection and restoration of sensitive areas such as wetlands, floodplains, recharge areas and steep slopes
- Providing peak flow reduction facilities such as temporary ponding and flow control structures
- Encouraging a watershed approach to the sizing of bridges and culverts throughout the watershed
- Promote the use of Best Management Practices in terms of stormwater management and erosion control to minimize impact of runoff in the watershed.
**ROCOG Environmental Justice Strategy**

ROCOG has approved a standard procedure for identifying environmental justice concerns at the project, program, and plan level. This is outlined in the ROCOG report entitled A Matter of Fairness, ROCOG’s Transportation Infrastructure Environmental Justice Protocol first adopted by the ROCOG Policy Board on January 21, 2002 (this report is now being updated). ROCOG assists local road authorities in the preparation of environmental justice analyses for all federally funded transportation project activities.

At a planning level, ROCOG has completed an areawide analysis to identify neighborhoods with significant environmental justice populations. ROCOG, consistent with general practice of federal agencies, uses the threshold that an environmental justice population exists in any neighborhood that has a proportion of a minority that is ten percent higher than the overall community percentage of that minority group. Table 14-3 identifies the proportions and threshold values for the minority groups identified by ROCOG as potential populations of concern.

**Table 14-3 Minority Proportion in the Community and Neighborhood Thresholds**

<table>
<thead>
<tr>
<th>Minority Group</th>
<th>Date of Data or Estimate</th>
<th>Estimated Community Population</th>
<th>Estimated Community Proportion</th>
<th>Threshold for Identifying Neighborhoods of Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black (sub-Saharan African and African American)</td>
<td>2012 (1)</td>
<td>6,829</td>
<td>4.7%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>2012 (1)</td>
<td>7,827</td>
<td>5.4%</td>
<td>15.4%</td>
</tr>
<tr>
<td>American Indian and Alaska Native</td>
<td>2012 (1)</td>
<td>429</td>
<td>0.3%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Non-White</td>
<td>2012 (1)</td>
<td>15,933</td>
<td>13.2%</td>
<td>23.2%</td>
</tr>
<tr>
<td>Hispanic – Latino</td>
<td>2012 (1)</td>
<td>6,071</td>
<td>4.2%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Black or African American (in combination with one or more races)</td>
<td>2012 (1)</td>
<td>8,010</td>
<td>5.5%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Asian or Pacific Islander (in combination with one or more races)</td>
<td>2012 (1)</td>
<td>9,211</td>
<td>6.4%</td>
<td>16.4%</td>
</tr>
<tr>
<td>American Indian and Alaska Native (in combination with one or more races)</td>
<td>2012 (1)</td>
<td>925</td>
<td>0.6%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Other than “White Alone”</td>
<td>2012 (1)</td>
<td>23,962</td>
<td>16.6%</td>
<td>26.6%</td>
</tr>
<tr>
<td>Hispanic - Latino</td>
<td>2012 (1)</td>
<td>6,071</td>
<td>4.2%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Primary Language spoken at Home other than English / speak English less than “very well”</td>
<td>2012 (1)</td>
<td>7,364</td>
<td>5.5%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Persons with incomes below poverty level</td>
<td>2012 (3)</td>
<td>14,125</td>
<td>9.8%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Low estimate - persons with incomes below poverty level</td>
<td>2012 (3)</td>
<td>12,432</td>
<td>8.6%</td>
<td>18.6%</td>
</tr>
<tr>
<td>High estimate - persons with incomes below poverty level</td>
<td>2012 (3)</td>
<td>15,818</td>
<td>11%</td>
<td>21%</td>
</tr>
<tr>
<td>Minority Group</td>
<td>Date of Data or Estimate</td>
<td>Estimated Community Population</td>
<td>Estimated Community Proportion</td>
<td>Threshold for Identifying Neighborhoods of Concern</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>--------------------------</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Family with income below poverty</td>
<td>2012 (1)</td>
<td>1,807</td>
<td>4.8%</td>
<td>14.8%</td>
</tr>
<tr>
<td>Elderly (65 and over)</td>
<td>2012 (1)</td>
<td>18,206</td>
<td>12.6%</td>
<td>22.6%</td>
</tr>
<tr>
<td>Disabled (persons 18-64 with a disability)</td>
<td>2012 (1)</td>
<td>5,365</td>
<td>6.0%</td>
<td>16.0%</td>
</tr>
</tbody>
</table>

(1) U.S Census Bureau 2008-2012 American Community Survey Five-Year Estimates of Population
(2) U.S. Census Bureau 2007-2011 American Community Survey Five Year Estimates of Population
(3) U.S Census Bureau, Small Area Income and Poverty Estimates (SAIPE) Program, December 2013
(4) Compiled by ROPD based on eligibility for Free and Reduced Price Lunch Program in school districts headquartered in Olmsted County using data provided by the Minnesota Department of Children, Families, and Learning at [http://cfl.state.mn.us/datactr/dtc_xls.htm](http://cfl.state.mn.us/datactr/dtc_xls.htm)

The aforementioned *A Matter of Fairness...* report contains extensive geographic analysis of the locational characteristics of these populations in the Rochester urbanized area. This data has been extensively used in project development activities and transit development planning as well as system level assessments that are described in the report. Extensive efforts, particularly in regards to providing transit service in identified neighborhoods, have been made in keeping with the intent of the law. Over 95% of the environmental justice populations have transit service meeting the general performance standards of the community.

![Transit Routes and EJ Neighborhoods](image1.jpg)

![Bikeway System and EJ Areas](image2.jpg)
Another aspect of the environmental justice directive is to ensure the full and fair participation by all potentially affected communities in the transportation decision-making process. Efforts are made to make resource information through a number of avenues, including through the Rochester-Olmsted Planning Department, the Rochester Regional Library system, on the web pages of the city and county, and upon request. Interpreter services are provided on request for individuals who request such accommodations.

The Citizen’s Advisory on Transit has been proactive in working with social service agencies and at the neighborhood level to investigate the transportation needs of environmental justice populations. The CAT attempts to provide services that meet the transportation needs of the disabled and low-income through fixed route public transit and the ADA paratransit services.

**TDM & Sustainability Implementation Directions & Strategies**

Improving the sustainability of the regional transportation network will require a set of strategies that can effectively reduce the demand for travel or shift travel to more efficient modes. With resources limited for building new capacity and the community experiencing continued growth, Transportation Demand Management (TDM) strategies are cost-effective complementary alternatives to additional investment in transportation facilities. Additionally, to achieve the vision for Downtown Rochester being defined in the 2012 Downtown Rochester Master Plan, it will be necessary for TDM measures to play a bigger role in achieving transportation objectives. The community must build upon its existing TDM partnerships with institutions such as the Mayo Clinic, and extend these efforts to other businesses and institutions in order to continue to attract business and employment opportunities and achieve the livability and economic development goals the community aspires to.

Table 14-4 on the following page summarizes the primary measures and strategies to be utilized in the realm of TDM to broaden travel choice, reduce impact and improve the sustainability of the ROCOG area transportation system. Table 14-5 beginning on page 14-34 highlights measures in addition to the TDM concepts identified that would be of value in increasing the sustainability of the transportation system.
### Table 14-4: Recommended TDM Strategies and Actions

<table>
<thead>
<tr>
<th>TDM Goal</th>
<th>TDM Strategy</th>
<th>Related Planning Guidance or Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence Travel Choice</td>
<td>Complete Safe Routes to Schools (SRTS) Plan for Rochester and Small Cities School Districts</td>
<td>USDOT SRTS grant for Rochester area and CDC Community Putting Prevention to Work grant for small cities were secured to fund this work. Small City plans completed in 2012 and Rochester Plan should be completed in 2015.</td>
</tr>
<tr>
<td>Influence Travel Choice</td>
<td>Continue to work with Mayo Clinic to refine and revise workplace commute options to reduce single occupant vehicle commuting</td>
<td>The Downtown Mobility Plan includes recommended TDM strategies including personal commuting information, parking cash-out, suggested performance goals. A draft Transportation Management Organization (TMO) Business Plan was developed in 2012/2013, but with initiation of the Destination Medical Center program implementation of a TMO-type organization will probably await final DMC Development Plan recommendations.</td>
</tr>
</tbody>
</table>
| Influence Travel Choice| ROCOG and the City of Rochester should work cooperatively with business interests to encourage employers to offer programs or benefits to employees designed to reduce drive alone commuting. | Examples of efforts that could be undertaken include:  
- Development of a TDM Best Practices Manual or brochures highlighting programs and incentives for promoting alternative transportation to employees.  
- Continue to explore the feasibility of a Transportation Management Organization (TMO) with Rochester CBD employers to provide a framework for joint management of TDM efforts  
- Outreach to local businesses and institutions to disseminate information and start discussion about TDM |
| Influence Travel Choice| Consider alternative Parking Pricing strategies recommended in the Rochester Downtown Mobility Plan | Implement demand based pricing for valuable on-street parking and to ensure off-street availability where demand exceeds supply. Incrementally increase rates to balance supply and demand using a target of 15% availability at times of peak demand |
| Influence Travel Choice| Consider alternatives to minimum parking requirements in certain areas of core city. | Rochester adopted land development regulations allowing for reduction in off-street parking in Central Development Core in 2013 |
| Influence Travel Choice| ROCOG and the City of Rochester should promote joint public-private development plans that incorporate desirable TDM features such as Park & Ride facilities or transit centers in combination with private commercial development, especially in corridors where transit and commuter bus service exists or is planned. |  |
| Influence Travel Choice| Establish a process for monitoring and reporting on indicators that measure the extent to which alternative modes of travel are financially supported and the extent to which individuals | Potential measures to track could include:  
- The % of funds from flexible sources going into alternative transportation |
<table>
<thead>
<tr>
<th>TDM Goal</th>
<th>TDM Strategy</th>
<th>Related Planning Guidance or Action Steps</th>
</tr>
</thead>
</table>
| -       | are using alternative travel modes to reduce the demand for private vehicular travel. | - Trends in transit ridership  
- Usage of park and ride lots  
- Participation in carpooling or vanpooling programs  
- Trends in vehicle occupancy rates  
- Spatial distribution of housing in relation to employment and shopping opportunities  
- Level of service for alternative modes |
| Influence Travel choice | Continue to work with City of Rochester on implementation of traffic calming projects | Traffic calming will improve attractiveness of non-motorized modes of travel |
| Influence travel choice | Promote telecommuting, flexible work hours and/or compressed work weeks as a means to reduce demand for peak hour commuting. |  |
| Provide Travel Choice | Continue to invest in improvements to walking and bicycling networks including: | - Implementation of recommendations from Downtown Bicycle Plan / Downtown Mobility Plan in regards to Main Street / Pedestrian Oriented Streets and Complete Streets / Bicycle Oriented Streets  
- Other pedestrian intersection crossing improvements in locations outside of Rochester CBD to improve safety and attractiveness for pedestrians  
- Continue to invest in development of backbone bike path and trail network throughout Rochester urbanized area to facilitate not only recreational travel but commuting and other utilitarian travel  
- Continue to seek funding to fill in gaps in sidewalk system, particularly along higher volume arterial corridors such as South Broadway Ave  
- Increase the amount of protected and secure bicycle parking at major destinations including downtown Rochester area and educational facilities  
- Promote end-of-trip facilities that support alternative transportation modes, such as showers and lockers at employment centers. |
<p>| Provide travel choice | In Rochester urban area, continue to apply adopted Complete Streets policy and principles to all new roadway construction / reconstruction / repaving projects as a matter of routine practice | Suggested steps to maintain commitment to Complete Streets include development of Complete Streets checklist; revision to street design standards to reflect Complete Street principles; continued coordination of various agency staff (Active Living, ROCOG, Public Works, Planning) in reviewing and developing recommended improvements |</p>
<table>
<thead>
<tr>
<th>TDM Goal</th>
<th>TDM Strategy</th>
<th>Related Planning Guidance or Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide Travel choice</td>
<td>Opportunities should be explored regarding the viability of car sharing programs as part of TDM program</td>
<td>Rochester has seen some developers of downtown multi-family residential establish development-based car sharing to reduce need for off-street parking.</td>
</tr>
</tbody>
</table>
| Reduce need to travel | ROCOG should work with local governments to explore the adoption of land use policies and guidelines that foster alternative transportation choices. Seek to identify opportunities where a virtuous circle of complementary private and public investment can evolve. Examples include:  
- Corridors where new transportation investment can serve as an anchor for desirable land use patterns that will promote walking and support transit.  
- Encourage new development or redevelopment opportunities in areas where land use can create conditions conducive to alternative transport modes | Among provisions to consider would be  
- Identification of transit corridor districts where a commitment to long term transit service would be paired with land use regulations promoting transit supportive development including  
  o Permitting mixed use development through standard zoning requirements;  
  o Targeting areas along such corridors for higher intensity development through minimum density/intensity requirements;  
  o Requiring transit friendly site design featuring easy pedestrian access to transit stops, buildings oriented to the street that invites pedestrian traffic, and safe accommodations for pedestrians within parking areas;  
  o Ability to locate a broad mix of housing options close to employment centers.  
- Work with local lending institutions to discuss the feasibility of products such as location-efficient mortgages |
| Reduce need to travel | Develop education and outreach materials and showcase developments that are “transit friendly” and promote alternative modes of transportation programs to local commissions, elected officials, developers and concerned citizens |  |

**Table 14-5: Recommended Strategies and Actions to enhance Sustainability**

**Sustainability Strategy**

As a matter of investment principle, ROCOG and its partner agencies should consider sustaining and extending the investment value of existing infrastructure through commitment to a “Fix it First” policy that would give higher priority to spending on existing facilities before expending funds on new capacity.
Sustainability Strategy

ROCOG should develop modified street design standards that would link urban street design options to not only functional and operational characteristics of the traffic but also to account for the land use environment in which the facility is located and characteristics.

ROCOG should work with the City of Rochester to investigate the feasibility of incorporating consideration of sustainability principles at the level of neighborhood design through adoption of neighborhood street network design principles addressing connectivity, traffic calming, streetscaping and drainage alternatives. One possible option to investigate is the application of the LEED Neighborhood Matrix to the development review process.

Create incentives and establish goals, policies, programs or standards that will encourage the utilization of sustainable development principles in the areas of:

- Complete Streets
- Bicycle Mobility Systems
- Transit-Oriented Development
- Parking
- Public Transit
- Pedestrian Mobility Systems

Strategies related to all of the concepts listed here are under further study in the Rochester Comprehensive Plan update to be completed in 2015 and aspects of certain elements, such as public transit and parking management, are recommended for further detailed study in refinement studies related to implementation of the Destination Medical Center Vision Plan

Success in developing effective Travel Demand Management programs and support for sustainability initiatives will require broad community involvement. Among the key factors that need to be taken into consideration include:

1. Buy-in from elected officials and top public officials
2. Strong central management and coordination
3. Research and analysis to create fact-driven programs
4. Aggressive but achievable initiatives
5. Guidance from an external advisory boards
6. Inclusive and transparent planning processes
7. Accountability to the public
8. Institutionalization of the program and establishment of monitoring processes
ENDNOTES

i Figure 14-1 from Rochester Downtown Master Plan, Parking Fact Sheet, Nelson\Nygaaard Consulting Associates, April 2010, p. 2 p 2, report

ii Figure 14-2 courtesy of

iii Figure 14-5 based on data from Chapter 2, page 2-2, Minnesota Climate Change Advisory Group Final Report: A report to the Minnesota Legislature, April 2008, accessed at http://www.mnclimatechange.us/MCCAG.cfm

iv Figure 14-8 from Chapter 5, page 5-2, Minnesota Climate Change Advisory Group Final Report: A report to the Minnesota Legislature, April 2008, accessed at http://www.mnclimatechange.us/MCCAG.cfm

v Figure 14-9 from report Air Quality in Minnesota: Emerging Trends, 2009 Report to the Legislature, Minnesota Pollution Control Authority, January 2009, p. 1


vii Figure 14-13 based on data from Behavioral Risk Factor Surveillance System, Center for Disease Control (CDC)

viii Figure 14-17 adapted from A Heavy Load: The Combined Housing and Transportation Burdens of Working Families, Center for Housing Policy, October 2006.

ix The Mn/DOT Complete Streets Feasibility Study is available online at http://www.dot.state.mn.us/planning/completestreets/legislation.html#report

x Active Living Rochester, A Blueprint to Support Active Living, August 2009, p.4, accessed online at http://www.co.olmsted.mn.us/departments/docs/Planning/ActiveLivingRoch/alrblueprint.pdf

xi Figure 14-22 from 2nd St Corridor Plan, Steering Committee Meeting presentation, November 14, 2007, slide 27, available from Rochester Area Foundation, 507-282-0203

xii Figure 14-15 from South Zumbro Watershed Storm Water & Capital Improvement Plan, September, 2003, p. 1A