



## Minneapolis Climate Action Plan

# EMISSIONS REDUCTION GOALS & STRATEGIES

October 30, 2012

### Implementation Goals

***Minneapolis will meet the adopted 2015 and 2025 greenhouse gas emissions reduction targets.***

While meeting emissions reduction targets, Minneapolis shall:

1. **Prioritize high impact, short timeframe, cost effective strategies.** Recent science suggests that immediate action (within 5 – 10 years) is necessary to bring down emissions to avoid severe impacts from climate change. This plan will prioritize strategies for implementation that may have the greatest impact on emissions in the short term, acknowledging that the greatest number of co-benefits might not be immediately realized. While seeking immediate impacts, this plan will acknowledge that we are regularly making decisions that may have impacts that will be felt for 50 or 100 years. We should always be cognizant of impacts on future generations.
2. **Seek strategies with multiple benefits with an understanding that there may be tradeoffs.** Wherever possible, implement strategies that provide a range of co-benefits (e.g., job creation, lifecycle cost savings to government or residents, improved public health, or broader awareness of climate impacts). Achieving one benefit may come with tradeoffs: a strategy may reduce greenhouse gas emissions and create new jobs, but require a significant up-front monetary investment. Policy makers and the community will need to carefully weigh these multiple benefits and costs while moving Minneapolis towards its emissions reduction targets.
3. **Avoid creating disparate impacts across Minneapolis communities and target strategies to communities that could most benefit.** Climate action strategies should be developed that avoid negatively impacting communities already heavily impacted by environmental or economic strain. Strategies should also be implemented in a way to benefit those most in need. This plan should also avoid shifting emissions or impacts outside of the city.
4. **Monitor progress annually and revisit goals and strategies as necessary.** The City of Minneapolis will continue to track community-wide greenhouse gas emissions and report on the implementation of climate action strategies and impacts.
5. **Begin building resiliency to climate changes and impacts.** This Climate Action Plan deals primarily with reducing emissions to mitigate climate change. However, we know that changes to the climate are already being felt in Minnesota. Minneapolis should explore the potential impacts and responses and build resiliency in local government and the community.

## Buildings & Energy

### Goals

1. Achieve **15 percent energy efficiency in residential buildings** from the growth baseline by 2025.
2. Achieve **20 percent energy efficiency in commercial buildings** from the growth baseline by 2025.
3. Increase **electricity from local & directly purchased renewables (like WindSource) from 1.5 to 5 percent** of the total consumed by 2025.<sup>1</sup>

### Cross-Cutting Strategies

1. **Launch a City initiative to make Minneapolis the most energy-efficient city in America.** Most of the energy in Minneapolis is consumed by businesses. Focus on efforts that large businesses/properties could undertake to reduce their energy usage. Research shows that the most effective energy efficiency programs succeed because they have committed leadership from the top. The City can use its leadership position to bring top City leaders to the table and affirm their commitment to working together to achieve this goal.
2. **Ensure that City facilities are models of energy-efficiency and renewable energy technology.** The City will investigate opportunities in buildings, street lighting, traffic signals and parking ramps to constantly increase energy efficiency and reduce water use. The water treatment plant is a large energy user, and opportunities for increasing efficiency will be continuously reviewed. Tools like the State's Guaranteed Energy Savings Program could be used to finance retrofits to city buildings. The City will continue to identify opportunities for renewable energy deployment on City facilities to reduce long-term operating costs and demonstrate new technologies.
3. **Support the State's adoption of the latest International Energy Conservation Code (IECC) and International Green Construction Code (IGCC) and adopt the IGCC locally.** The IECC and IGCC will change the building code to require new commercial construction be more water and energy efficient and more durable. If the IGCC is adopted at the state level as an appendix chapter, Minneapolis will need to adopt it locally before it can be in force.
4. **Incentivize energy and water efficiency in private buildings during every interaction with the City.** City departments could promote energy and water efficiency efforts to anyone interacting with the City for regulatory purposes (moving beyond compliance). This may be targeted towards certain kinds of buildings that showed high promise for targeted efforts on energy efficiency, such as restaurants.
5. **Require City-financed projects to meet an energy efficiency standard, like Sustainable Buildings 2030.** The State of Minnesota has adopted a requirement that all State bonded projects meet the SB2030 standards. This requires progressively better energy performance from new projects. Similar requirements include St. Paul's Sustainable Building Policy. Alternatively, or in combination, the city could require projects to complete Xcel Energy's Energy Design Assistance program. In conjunction, the

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<sup>1</sup> The percent of Minneapolis' electricity consumption that is coming from renewables is calculated based on generation sources above and beyond Xcel Energy's average grid mixture. Sources like Wind Source and local, distributed generation would be counted towards the goal. In 2010, 19% of the fuel sources used by Xcel to generate grid electricity came from renewable sources.

City should review the ratios required for project financing (gap financing to overall project cost) to minimize any disruption to affordable housing construction that may be caused by implementing additional requirements.

6. **Explore opportunities to restructure the mechanical permit fee schedule and other fee schedules to incentivize energy- and water-efficient products and renewable energy.** Mechanical permit fees for products like furnaces are currently based on a percentage of the total value of the work being performed. More energy efficient products are typically more expensive than less efficient products, increasing the permit fee, which could be a disincentive to contractors and building owners to install more efficient equipment. With Regulatory Services staff and stakeholders, explore changes to the permit fee structure (ideally revenue neutral) that would incentivize the installation of more energy- and water-efficient equipment or renewable-supportive building design (e.g., “solar ready” buildings).
7. **Determine the feasibility of establishing conservation-based pricing or structuring of franchise fees and using the franchise agreement to support renewables.** During the update of franchise agreements with utilities, Minneapolis should explore options to encourage energy conservation – through utility fee structure or the price passed on to customers. Examples could include structuring fees based on usage per customer or reducing fees if utilities meet energy efficiency/CIP goals. Franchise negotiations also provide an opportunity to plan for better integration of distributed solar PV into the grid (e.g., by linking up to the distribution system currently in place in many City rights-of-way).
8. **Evaluate and expand incentives granted for high energy performance.** Density bonuses are currently available to developments in the downtown zoning districts achieving high energy performance and can be used as an amenity for a planned unit development to obtain approvals for alternatives to the zoning regulations. These bonuses could be extended to areas outside of downtown and/or incorporated into other incentive programs. Extend these incentives to buildings that incorporate or are designed to allow for easy installation of significant renewable energy systems.
9. **Develop tools to finance energy efficiency and renewable energy retrofits for commercial and residential buildings that have low barriers to entry and limited risk for local government.** Property-assessed, on-bill and other financing tools could provide low-interest financing opportunities for homeowners and commercial properties and avoid issues like opportunity costs, high interest rates or high barriers to entry. Working through a process led by the State of Minnesota, identify tools that the City or another regional entity can develop to provide more opportunities for energy efficiency and renewable energy financing.
10. **Support the adoption and implementation of emissions reductions plans by other local businesses, government entities and institutions.** Hennepin County and the University of Minnesota have adopted targets for emissions reduction. Other entities, like health care campuses, may also be taking action on greenhouse gas emissions. Minneapolis should support these and other efforts and collaborate on implementation. The University of Minnesota has adopted aggressive targets for reducing greenhouse gas emissions from their operations, including achieving net zero emissions by 2050. Whenever possible, Minneapolis will support the University’s efforts to reduce emissions.

11. **Monitor new technologies and regularly reassess strategies. Encourage implementation when feasible.** There are many new technologies that could hold promise for energy efficiency and reducing emissions. Real-time pricing coupled with smarter appliances could reduce costs for electricity consumers and emissions. Advanced energy management technology could reduce wasted energy.
12. **Identify opportunities to increase conservation efforts within the downtown district heating and cooling system and make the system more efficient using technologies like combined heat and power.** The downtown district heating and cooling system, in total, represents one of the single largest loads in the City. Operated by NRG, the City is a major user, with connected loads including the Convention Center. Because customers on this system do not have access to utility conservation programs, there is an opportunity for the city to help increase the efficiency of the customers on this system. There may also be opportunities to make the district heating itself more efficient, for example, natural gas fired plants could be retrofitted to include combined heat and power generation. The City should work with Hennepin County and NRG to determine where these retrofits might make sense.
13. **Identify opportunities to expand the use of district heating systems to new and existing buildings.** The downtown district heating and cooling system provides an efficient alternative to individual building heating and cooling systems. Explore barriers to expansion into existing and new buildings in downtown. Identify opportunities for expanded district heating and cooling outside downtown with new or existing systems.

### **Residential Buildings**

1. **Help 75 percent of Minneapolis homeowners participate in whole-house efficiency retrofit programs by 2025.** The City of Minneapolis has provided initial support for CEE's Community Energy Services (CES) program, which has served about 4,800 Minneapolis owner-occupied homeowners, or a little over 5% of the target population. The City could continue to help recruit homeowners into the program, and set a goal of 75% of homeowners participating in CES or similar whole-house retrofit program.
2. **Create time-of-sale and time-of-rent energy label disclosure.** New homeowners and potential tenants are a target group to promote energy upgrades, as they can be more receptive to needed upgrades, especially when financing is available. Tenants could also use an asset rating label to make comparisons about energy performance and cost between units or buildings. Minneapolis currently requires a home inspection prior to any Minneapolis home being put on the market, called the Truth-in-Housing program. The City could "green the Truth-in-Housing program" by including the collection of data sufficient to generate an energy label. In order to be cost-effective, data collection would need to be as limited as possible, while providing useful information to the homeowner. The Center for Energy and Environment has developed such a label that is particularly relevant for Minneapolis housing stock that is currently being used in the Community Energy Services residential program, and could be expanded for use in the Truth-in-Housing program. A label for multi-family structures does not yet exist.
3. **Connect and collaborate with other residential energy efficiency efforts.** This includes:

- Helping to promote and work with on-line energy efficiency efforts that build teams and help to increase energy efficiency awareness and actions, including the Minnesota Energy Challenge, and OPOWER's new Facebook application.
- Promoting appliance trade-ins through City events.
- Promoting the use of energy benchmarking in Minneapolis multifamily buildings, as through the Minnesota Energy Scorecards program: [www.energyscorecardsmn.com](http://www.energyscorecardsmn.com)

### ***Commercial Buildings***

1. **Continue to host an annual Energy Reduction Challenge (“Kilowatt Crackdown”) for Commercial Buildings in conjunction with the Building Managers and Owners Association (BOMA) and other partners.** BOMA has developed a program, called the Kilowatt Crackdown, which local chapters can implement. Building owners track their energy use, through the EnergySTAR Portfolio Manager tool, over the course of a year or two. This is compared to a benchmark of the previous year, and the buildings with the highest energy reduction receive awards.
2. **Implement a Building Energy Disclosure policy for medium and large commercial buildings.** A disclosure policy for commercial buildings that requires publication of data annually will help increase the impact of energy use information in the marketplace, driving further energy efficiency improvements.
3. **Explore implementation of a commercial asset rating program, such as the Department of Energy’s Commercial Building Energy Asset Rating.** Asset ratings provide a tool to evaluate the physical characteristics and as-built energy efficiency of buildings. An asset rating can also identify areas where improvements are needed.
4. **Develop “green lease” model language that allows building owners and tenants to share the energy savings from building capital improvements.** Tenants and building owners often have a split incentive when it comes to energy efficiency improvements since tenants frequently pay the energy bills. New model language could make more capital improvements likely.

### ***Industrial Buildings***

1. **Continue to support a loan program to help businesses including industrial companies to become more energy efficient and expand their businesses.** A relatively small number of Minneapolis industrial customers are responsible for a large proportion of total energy usage in the City. Focusing efforts to increase the energy efficiency of these businesses can have a large impact, as well as increase the competitiveness of Minneapolis businesses and support job growth.

### ***Renewable Energy***

1. **Support efforts to align utility practices with city and state renewable energy policy.** State and local policies express a clear preference for renewable energy and distributed generation. The City thus supports efforts to reform or eliminate all practices that discourage property owners from adopting on-

site renewable energy generation, including limiting standby charges, improving interconnection standards, modifying demand charges, expanding “net metering” benefits to large commercial/industrial businesses, and exploring concepts like feed-in tariffs. The City should continue intergovernmental relations efforts to reduce barriers and encourage development of renewable energy resources.

2. **Investigate the feasibility of large-scale renewable energy purchasing for the municipal government and/or residents.** The City routinely receives unsolicited requests to invest in bulk purchasing of renewable energy. Establish a proactive review process for these requests and/or explore an RFP process for bulk purchasing.
3. **Create policies and programs to incorporate renewable energy into buildings.** A number of cities and states across the nation are creating long-term policy goals and setting in motion building code changes that anticipate the declining cost curve for both solar energy and energy efficiency.
  - Develop a “solar-ready” building certification. Existing buildings were not built to accommodate solar energy installations; retro-fitting existing buildings adds significant costs to solar energy. Making new buildings “solar-ready” adds virtually no cost to construction costs. The next generation of the city’s building infrastructure should accommodate the next generation of energy production.
  - Encourage “net-zero” energy buildings. Net-zero energy buildings maximize synergies between energy efficiency and distributed energy generation. Policies in other states are anticipating building codes that require net-zero standards for residential buildings as soon as 2020. Minneapolis should plan to capture this transformative market trend through support of state efforts and creation of local incentives.
4. **Support new financing and ownership models for developing Minneapolis’ solar resource.** Support explicit authorization of third-party solar leasing and ownership and enabling community solar projects. Third party ownership and leasing models expand access to on-site renewable energy generation by simplifying the adoption process and enabling the cost-effective bundling of tax incentives, long-term financing, installation, and operation and maintenance into a single transaction. Minneapolis residents who do not own property or whose property has a poor solar resource should be enabled to own part of an off-site solar PV installation, and receive a share of the production credits on their utility bill.

## Transportation & Land Use

### Goals

1. **Reduce automobile vehicle miles traveled in Minneapolis** while improving accessibility, increasing transportation choices, and promoting and accommodating growth.
2. Support **livable and walkable neighborhoods** that meet the needs of all Minneapolis residents.
3. **Grow jobs and housing** to support a growing economy and non-auto transportation modes.
4. Increase the share of Minneapolis residents and workers choosing **non-auto modes** for commuting and other trips.
5. Through local action and federal and state legislation, **support a transition to cleaner fuels and more efficient vehicles.**

### Planning & Land Use

1. **Improve inter-departmental and inter-agency collaboration on transportation issues, and track progress.** City policy already instructs staff to work across departments on transportation and land use issues; it also recommends both formal and informal collaboration between the City and partners like the Metropolitan Council and Hennepin County. Add accountability to this policy direction by regularly reporting to the public and policymakers on the successes of recent collaborations, and challenges that may be hindering these partnerships.
2. **Plan for and encourage “complete neighborhoods.”** Residents of complete neighborhoods can safely and conveniently walk to obtain most of the basic goods and services they need on a daily basis. Explore changes to the zoning code to provide maximum flexibility for diverse commercial uses. This could include providing height or density bonuses for leasable ground floor commercial spaces. This could also include “market development” strategies which would remove barriers for small-scale retail and essential services like daycare centers.
3. **Focus growth in and along land use features designated in *The Minneapolis Plan for Sustainable Growth*.** While supporting growth throughout the city, follow the adopted Comprehensive Plan to guide future development toward areas with multi-modal transportation access. This means focusing growth along community and commercial corridors, in transit station areas, activity centers, and growth centers such as Downtown.
4. **Review the zoning code to identify impediments & incentives to the construction and retrofit of green buildings.** Further study may highlight opportunities to “green” the zoning code including:
  - a. Exempt greenhouses from maximum height calculation on multi-story structures.
  - b. Exempt additional wall insulation from FAR and setback calculations.
  - c. Allow boiler rooms on the roof of buildings.
  - d. Incentives in zoning to increase energy efficient construction, renovation and operation of buildings.
  - e. Incentivizing the inclusion of car-sharing as part of new developments.

### **Transit & Car Sharing**

1. **Support the Metropolitan Council's goal of doubling regional transit ridership by 2030.** Through land use and transportation infrastructure decisions, communications and collaboration with partners, the City should support the Metropolitan Council in achieving the 2030 goal.
2. **Support the build-out and upgrade of regional and local transit lines.** The City should support and implement local and regional transit improvements consistent with Access Minneapolis and other plans to reduce VMT and provide more transportation options. Regional transit facilities in the planning or construction phase include Central Corridor LRT, Southwest LRT, Bottineau and 35-W Bus Rapid Transit (BRT). Local improvements to the Primary Transit Network (PTN) include streetcar and arterial BRT lines.
3. **Advocate for an increase to the dedicated funding stream for transit construction and operations at the local, state level and regional level.** The current funding level for transit projects through the Counties Transit Improvement Board (CTIB) utilizes a quarter-cent sales tax to fund transit improvements. The original legislation proposed a half-cent sales tax. Increasing the amount that counties can opt-in to use would speed development of regional transit projects. Local governments could also benefit from additional tools for funding transit construction and operations like value capture along transit corridors.
4. **Work with Metro Transit and property owners to improve capacity and use of transit during special events.** Many attendees of major events at the Metro Dome, Target Field, the Convention Center and other locations in Minneapolis use transit, but the City should continue to work to increase the use of transit and non-auto modes for these events.
5. **Complete the downtown east-west transit spine improvements.** The Access Minneapolis Plan calls for the upgrade of transit service in the vicinity of 7<sup>th</sup> Street. This corridor is the second-busiest in terms of weekday boardings in downtown. This improvement may be similar to the Marq2 project, which improved travel times and provided dynamic signage to improve user experience and convenience.
6. **Expand car-sharing services to on-street spaces.** Parking staff will soon begin the process to bring car-sharing services to on-street spaces in the city. Continue to expand these services as demand and feasibility permit.
7. **Make car-sharing convenient and affordable by reducing sales tax on car-sharing products to the minimum rate.** Currently, car-sharing transactions in Minneapolis appear to be taxed at a higher rate (~12 percent) than the general sales tax rate for Minneapolis (7.775 percent). Consider separating car-sharing services from regular rental car service in terms of special sales tax rates.

### **Active Transportation**

1. **Achieve the City's adopted targets for bicycle mode share and bicycle counts and adopt a stretch goal of 15 percent for 2025.** The City has adopted targets for bicycle mode share of 6 percent by 2012 and 7



percent by 2014. In addition, the City has adopted a target to increase cyclists in annual counts by 60 percent over 2008 by 2014. Consider a mode share goal for 2025 of 15%.

2. **Construct 30 miles of on-street, protected bike facilities (cycle tracks) by 2020 to allow safe and efficient travel for all types of cyclists.** Bicycles are a zero-emissions form of transport. Addressing the perception of safety of on-street bicycle facilities will attract more cyclists to Minneapolis' network of facilities and help to meet mode share goals.
3. **Revisit minimum bicycle parking requirements to support the City's bicycle mode share targets.** The City is investing in on- and off-street bicycle facilities, and has set targets for bicycle use. Providing sufficient parking that is convenient and safe will be a key in meeting these goals. Existing standards, such as the Association of Pedestrian and Bicycle Professional parking guide and the City's adopted workplace access and parking guidelines could be reviewed for consistency with current code. Bicycle parking demand may also vary more based on geography than auto parking. More data on local parking demand is needed.
4. **Support implementation of the Pedestrian Master Plan and Bicycle Master Plan.** When walking and biking are safe, efficient, and comfortable, the benefits are felt community-wide and reduce dependence on automobiles. Monitoring and following up on the Pedestrian and Bicycle Master Plans' recommendations will be integral to meeting greenhouse gas reduction goals across the transportation and land use sectors.
5. **Allow special service districts to levy a surcharge on parking meters to fund streetscape improvements.** District advisory boards can opt to apply a streetscape improvement surcharge to on-street parking, the revenue from which would be used for streetscaping or other improvements that make walking, cycling, or taking transit more attractive.
6. **Continue "Safe Routes to School" efforts.** The City's Safe Routes to Schools effort encourages children to adopt healthy habits of walking and biking. This is done by improving safety near schools through infrastructure projects, as well as fostering a culture of walking and biking in the schools through educational programs.
7. **Adopt a Complete Streets policy.** A Complete Streets policy will demonstrate a commitment to providing adequate pedestrian, transit and bicycle facilities during every road improvement project. While the City already has adopted many elements of Complete Streets work, such as Bicycle and Pedestrian Master Plan and a multi-modal transportation plan, such a policy may be necessary to best position the City to receive outside funding.

### **Parking Management**

1. **Investigate demand-based parking pricing strategies for metered areas.** The city's new parking meters allow for variable pricing. Vary pricing on metered streets, with a goal of achieving one empty spot per block, in order to reduce "cruising" for spots and improve traffic flow.

2. **Continue to adjust minimum parking requirements to better promote alternative modes of transportation.** For example, developers of multi-family housing currently qualify for a 10 percent reduction in required parking stalls if the parcel is within 300 feet of a transit stop, even though one-quarter mile (1,320 feet) is commonly accepted as the distance an average rider will walk to a bus stop.
3. **Support the development of new information technology to reduce “cruising” for parking and make more efficient use of curb & ramp space.** Parking staff are developing new approaches, such as a mobile phone app, which will provide more information to drivers on the location of vacant parking spaces. These types of applications can reduce cruising for parking, which can be a significant source of congestion in certain parts of the city at certain times.
4. **Support the development of a citywide framework for curb space use.** Parking staff will be developing a framework plan to understand how to best use curb space, both for parking, valet services, delivery vehicles, active transportation and other uses. Climate Action Plan goals for increasing active transportation and reducing VMT should be considered during this process.
5. **Require or incent parking “unbundling”.** Adopt requirements or incentives for developers that parking be separated from commercial space and residential units in lease and sale agreements.

### ***Transportation Demand Management & Intelligent Transportation Systems***

1. **Support the Downtown Transportation Management Organization’s goal to reduce 4.8 million drive alone trips by 2015.** The Downtown TMO helps commuters get into downtown with less reliance on the single-occupancy vehicle. Supporting their goals include increasing bicycling, transit and rideshare use.
2. **Explore changes to signal timing to reduce idling, improve traffic flow and accommodate non-auto modes.** City staff are currently reviewing signal timing on a citywide basis to increase network efficiency. Potential changes to reduce emissions could include “green waves”, either for cars or cyclists, depending on the roadway and changing lights to flashing red/yellow late at night and early in the morning.
3. **Support the expansion of congestion pricing, dynamic signage and other traffic management techniques on regional highways.** Demand-based pricing can help reduce congestion while encouraging carpooling and transit use. Other techniques that have proven beneficial are dynamic signage which can help reroute drivers and rapid response to crashes.
4. **Support large employers in implementing alternative work arrangements for employees.** Results-Only Workplace Environments (ROWE), variable work schedules, telecommuting, and teleconferencing all have the potential to reduce overall trips or spread trips from rush hour into less-congested times. The City can collaborate with the downtown TMO, Downtown Council, and other organizations to provide businesses with information and expertise on these practices.

## Clean Fuels

1. **Explore regulatory incentives to increasing electric vehicle charging infrastructure.** The inclusion of electric vehicle charging could be incentivized through the zoning code or other city regulations for large multi-family and commercial buildings. As technology and adoption rates of electric vehicles change, the city should revisit these incentives and consider requirements for EV charging in parking code for multi-family and commercial buildings as appropriate based on demand.
2. **Provide electric vehicle charging stations at City-owned facilities where feasible.** Continue to investigate the feasibility of vehicle charging stations at public facilities as funding allows. Closely monitor electric vehicle technology to ensure investments are appropriate.
3. **Increase the fuel efficiency of the city's licensed taxi and car service fleet.** The City's current requirement for taxi vehicles is to achieve 23 mpg or better in city driving. As the City updates this policy, consider increasing the minimum mpg requirement. Given that taxis are high-mileage vehicles, better fuel efficiency can pay off more quickly than in other applications.
4. **Support the proposed Federal fuel efficiency improvements.** On-road vehicle fuel efficiency has a significant impact on the transportation sector emissions in Minneapolis. Changes to the Federal CAFÉ standards will increase the fuel efficiency of vehicles on the road.
5. **Support increased fuel efficiency in public fleets.** Minneapolis has adopted a green fleets policy which calls for fuel efficiency improvements in City-owned vehicles and equipment. Support the efforts of entities like the Metropolitan Council and the State of Minnesota to improve the fuel efficiency of their fleets. In particular, hybrid or fully electric buses have the added benefits of reducing noise pollution and localized air pollutants like particulates in high-traffic areas.
6. **Support state efforts to adopt a low-carbon fuel standard.** As outlined in the Minnesota Climate Change Advisory report, support the adoption of a statewide Low-Carbon Fuel Standard, with a goal of reducing the lifecycle carbon intensity of transportation by 12% by 2025 from 2007 levels.
7. **Support the development of alternative jet fuels and ensure MSP is prepared for their increased use.** Most emissions attributable to MSP are produced by jet aircraft. Domestic and foreign airlines have successfully trialed a variety of biofuels, which have been approved for use in commercial flights since July 2011. As production chains mature, MAC and its airline partners will need to be sure MSP facilities are adequately prepared to store and dispense biofuel-blended jet fuel. Minneapolis should also support future regulatory actions designed to accelerate the switch to cleaner-burning jet fuels.

## Other Strategies

1. **Continue to shift to LED streetlights.** Streetlights are the second largest energy user in the City enterprise, after water treatment. Replacing conventional bulbs with LEDs can net up to a 50 to 60 percent reduction in energy use and have the potential to reduce maintenance costs. As capital costs come down, continue to replace older bulbs with more efficient LEDs, with a long term goal of citywide LED use.

2. **Support continuing efficiency efforts at the Minneapolis-St Paul International Airport.** Increasing vehicle fuel efficiency has led to a reduction in greenhouse gas emissions from the airport. Investigate additional partnership opportunities to support the Metropolitan Airports Commission in meeting the state greenhouse gas reduction targets.
3. **Assist the Metropolitan Airports Commission in making MSP the nation's "greenest" airport.** MAC's Stewards of Tomorrow's Airport Resources program identifies numerous projects that could reduce the airport's emissions, ranging from on-site clean energy production to grey water recycling and storm water reclamation. The airport's constant flow of travelers also make it an excellent location for demonstrating green technologies and educating the public about the causes and impacts of climate change.
4. **Encourage the Metropolitan Airports Commission to expand its use of renewable energy resources.** MAC is exploring investment in renewable energy sources like wind (from off-site sources), solar, and geothermal. The City has a great deal of experience in this area, particularly with solar photovoltaic and thermal technologies. Staff should share expertise and key lessons as MAC undertakes similar initiatives. Examples from other airports, like Denver International, show that large open spaces with unobstructed solar access can provide good opportunities for solar generation.
5. **Support the implementation of more efficient takeoff and landing procedures at MSP International Airport.** Efficiency improvements like pre-set flight paths and GPS-based navigation allow aircraft to take off and land with fewer air quality and noise impacts on airport-adjacent communities – and to burn less fuel, substantially reducing greenhouse gas emissions. The Federal Aviation Administration (FAA) is working with MSP and other local partners to increase the use of these area navigation (RNAV) and required navigation performance (RNP) procedures. Minneapolis should leverage its role on airport-related boards and committees to encourage quick implementation of these procedures with GHG emissions reduction a central goal.
6. **Encourage the State of Minnesota to permit the testing of self-driving vehicles on public roadways.** In the long term, autonomous vehicles have the potential to reduce the total number of vehicles on the road, increase fuel efficiency and increase safety for cyclists and pedestrians, all of which could have a positive climate impact. Permitting the testing of these vehicles will signal to industry that Minnesota is eager to explore this new technology, and could bring economic benefits.

## Waste & Recycling

### Goals

1. Achieve a **zero percent growth rate** in the total waste stream from 2010 levels.
2. **Recycle 50 percent of the waste stream** (commercial and residential) in Minneapolis by 2025.
3. **Increase organics collection to 15 percent** of the waste stream by 2025.
4. Reduce the flow of wastewater from Minneapolis and support efforts to make wastewater treatment more energy efficient.
5. **Increase awareness of the lifecycle impacts of products** to address GHGs occurring outside the community.

### Reducing Waste

1. Identify consumer products and packaging that are neither recyclable nor compostable and engage companies, consumers and retailers in a campaign to reduce the disposal of such products and packaging through reuse efforts, switch to alternative materials, or make changes to the supply chain. In addition, the City should participate in and support the efforts of the MPCA Product Stewardship Council.
2. Identify and promote reuse and repair businesses and opportunities which can reduce the disposal of used goods. Evaluate existing ordinances and remove barriers for reuse and repair opportunities. Connect with the State's reuse network. Examples include "fix-it clinics" or promoting existing businesses with a reuse focus.
3. Work with Hennepin County and other partner organizations to encourage businesses and residents to purchase reused and reusable goods (Choose to Reuse campaign).
4. Expand Green Building programs (such as a requirement for city-financed new construction and renovation projects) to promote a reduction in construction and demolition waste.
5. Expand neighborhood and backyard organic composting through community initiatives and advocate for updated composting rules at a state level.
6. Develop innovative marketing and behavioral strategies. Examples could include behavioral strategies to reduce food waste like signage and reducing tray use, and supporting County efforts for expanded outreach to commercial and multifamily properties.
7. Undertake a public education campaign to inform residents about opt-out opportunities for material like phone books and junk mail. Additionally, explore requiring that businesses like phone directories operate as an opt-in service in Minneapolis.
8. Work with Hennepin County, regional groups and the State of Minnesota to develop better data collection tools and sources, especially for commercial and multifamily waste data.
9. Require City-financed development projects to meet a green building standard (see Buildings & Energy Cross-Cutting Strategy 5) that includes a waste reduction and/or recycling standard. Projects that receive State money must meet Minnesota Green Communities standards, which include rules about construction and debris waste and recycling infrastructure. The City of Minneapolis should follow suit in order to support its existing waste reduction and recycling goals, and to reduce GHG emissions.

### **Increasing Recycling**

1. Support implementation of a single-sort recycling program for curbside pickup.
2. Continue to expand the types of materials accepted by the City's recycling program.
3. Complete a comprehensive assessment of pricing incentives and penalties for residential waste and recycling services and identify strategies, such as volume-based variable-rate pricing, that could increase recycling and reduce waste.
4. Enforce the commercial recycling ordinance and undertake an educational campaign to expand recycling options in multi-family housing.
5. Identify financial and other barriers to recycling in multi-family buildings (different priorities between property management company and tenants, lack of knowledge of costs, etc.).
6. Work with the County to increase the rate of recycling of construction and demolition debris in the city.
7. Support state adoption of the new International Green Construction Code (IGCC) and adopt the IGCC locally (see Buildings & Energy Cross-Cutting Strategy 3). The IGCC includes requirements for diverting construction and debris waste and incorporating recycling infrastructure in the design of projects. If the IGCC is adopted at the state level as an appendix chapter, Minneapolis will need to adopt it locally before it can be in force.

### **Increase the Composting of Organics**

1. Identify major organic waste producers (food service, schools, hospitals, etc.) and conduct a targeted campaign to increase organics recycling. Identify corridors (Nicollet Avenue, for example) with a critical mass of large producers that might make organized collection more feasible. Consider an ordinance requiring large producers to divert organics.
2. Based on the results of pilot programs and through a detailed study, determine the feasibility and costs of expanding the collection of source-separated organics at residential properties citywide. After these costs are known, reassess the best approach for removing organics from the residential waste stream.
3. Support more options for the local processing of organic waste at both large and small scales. There are currently few options for processing collected organic waste in the Twin Cities region. Changes to state and county rules, or a stronger local market for organic composting may be necessary to build more processing capacity.
4. Make City worksites a model for organics composting by developing a collection program for city-owned and (where possible) city-leased buildings.

### **Addressing Product Lifecycle Impacts**

1. Work with Homegrown Minneapolis to incorporate more information on food choice impacts, particularly as it relates to greenhouse gas emissions.
2. Develop educational materials that illustrate the emissions impacts of common products or behaviors, and include these materials in city utility bills.

**Reducing Wastewater Treatment Impacts**

1. Work with the Metropolitan Council to achieve their energy use goals and track associated impacts on GHG emissions from Minneapolis contribution to wastewater flows.
2. Achieve a 75% participation rate in the Community Energy Services program for eligible Minneapolis properties, which includes low-flow water fixture information and installations.
3. Explore options for expanding the use of greywater systems and water conservation measures in public and private buildings. This could be included in the local adoption of the new state building codes as an elective or promoted in city-financed projects.

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