



M E M O R A N D U M

TO: Honorable Mayor Cowhey and members of the City Council
cc: Bob Kiely, City Manager, DeSha Kalmar, Human Resources Director
FROM: The GREEN TEAM
DATE: October 5, 2009
RE: Report on Adjusted Work Week Schedules

At the request of the City Council, the Green Team respectfully submits this report on the impacts of adjusted schedules.

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Executive Summary – Report on Adjusted Schedules

Based on research of other organizations and a review of the services provided by the City of Lake Forest, the use of adjusted schedules would support the City Council's commitment to the U.S. Mayor's Climate Protection Agreement and pledge to reduce greenhouse gas emissions (GHG). Savings associated with telecommuting and/or closing City Hall and the Municipal Services Building one day per week, as well as the reduced commuting miles, would result in reduced energy consumption and fossil fuel emissions. Other government agencies have implemented the following adjusted schedules: a **4-10 model** where employees work four, ten-hour days; a **Telecommuting model** where employees have the option to work from home on a regular basis; the **Staggered model** where employees stagger hours to cover a full shift 5 days per week; and a **9-80 model** where employees work 80 hours within a two week period with longer hours one week and a day off the following.

Recommended Adjusted Schedules

Currently there are many options available to employees of the City of Lake Forest to reduce the number of employee vehicles commuting each week. Expansion of the Telecommuting program and the use of staggered work-week schedules would still afford citizen access to city facilities and staff five days a week while at the same time reducing employee commuting costs and providing an environmental benefit.

The Green Team and the City Manager recommend individual departments' adoption of alternative work schedules that maintain or enhance the level of service to residents and the quality of life for employees.

At this time, the Green Team and City Manager do not recommend adoption of the 4-10 Model where all employees work four, ten-hour days with a complete shut down of City Services on the 5th day (with the exception of emergency services.) In the future, that type of schedule adjustment may be considered by the City Council.

The City already has the capacity to allow employees to telecommute and to work flexible schedules as noted below. All proposed adjusted schedules must be approved by the Department Head and Human Resources to ensure all legal requirements are met.

- **Telecommuting Model** (*eight-hour days in the office with no more than two eight-hour days worked from home*)
In this model employees have the option to work from home through the use of a Virtual Private Network (VPN). This model improves the carbon footprint for the City and could save the City money in the long run. This model is already available to employees at the discretion of management. It eliminates up to two commuting days each week for those employees able to take advantage of telecommuting.
- **The Staggered Model** (*Four, ten-hour days with staggered work schedules allowing the department to remain open 5 days/week with extended hours of service*)
In this model, employees stagger hours to cover a full shift with the goal of shortening the work week for employees. This model realizes GHG emissions reductions from reduced employee commuting, but energy usage and operating costs for the City could actually increase due to the extended work hours.

- **The 9-80 Model** (*Four, nine-hour days, with alternating Fridays off/8-hour day, making 80 hours in a 2-week period*)**"EXEMPT" EMPLOYEES ONLY**
In this model, employees work 80 hours within a two week period with four 9-hour days and alternating an 8-hour day with a day off every other week. This model allows employees to work longer hours one week with a day off the following. This model would have environmental benefits with the reduced number of commutes every other week.

Environmental Benefits

The following report outlines the impact adjusted schedules may have on City operations, residents, employees and the environment. Due to the complex services The City provides, no one model satisfies the needs of The City of Lake Forest. However, as part of the City's commitment to becoming a more sustainable organization, it is beneficial to look at expanding the use of flexible schedules and Telecommuting options in an effort to remove a significant number of cars from the road and reduce greenhouse gas emissions.

By eliminating one day of commuting into work each week for every full time employee (with either an adjusted schedule or Telecommuting model) employees will eliminate 380,276 miles traveled in a car each year and save 18,416 gallons of gasoline, a non-renewable resource. At the current price of gas (approximately \$2.60/gallon at the time of writing¹) employees will collectively save a total of \$47,882/year. This would also reduce The City's Carbon Footprint by 181 tons (164 metric tons) of CO₂ each year, which is a meaningful percentage of our total footprint². This is the same amount of CO₂ absorbed by 37 acres of pine or fir forests each year³. While difficult to calculate with the information available, even ten percent of employees participating in an alternative schedule that eliminated a day of commuting each week would realize environmental benefits and an overall reduction in the Carbon Footprint of the organization.

Encouraging Change

In 2008 the Green Team was formed to evaluate City Operations and make recommendations to the City Council to help reduce the City's Carbon Footprint. This group of dedicated employees, in conjunction with department heads and the Department of Human Resources is a resource for employees. The Green Team strives to research, educate, and encourage environmentally friendly choices for the long-term. With the support of the City Council, the Green Team will be instrumental in encouraging the use of alternative schedules and alternative modes of transportation such as carpooling and public transportation. Prior to the implementation of alternative schedules, employees should meet with department heads and Human Resources to develop a program that not only provides excellent service to the residents, but will showcase the City's dedication to protecting and preserving the environment and our limited natural resources.

¹ July 13, 2009

² The Green Team will determine the actual impact this might have on achieving our Carbon Footprint reduction targets in the Action Plan to be completed later this year.

³ 4.4 acres of pine or fir forests absorb 1 metric ton of CO₂ each year (see <http://www.epa.gov/cleanenergy/energy-resources/refs.html>)

City of Lake Forest Report on Adjusted Schedules

Presented by the City of Lake Forest GREEN TEAM



October 5, 2009

REPORT ON ADJUSTED SCHEDULES – City of Lake Forest

Purpose

The City Council of Lake Forest directed the Green Team to review the issues related to implementation of an adjusted work schedule. As CO₂ levels rise and the world's natural resources become scarcer, there is a growing awareness that action needs to be taken against global climate change. Mayor Rummel signed the *U.S. Mayors Climate Protection Agreement* in 2007 stating the City's commitment to reduce greenhouse gas (GHG) emissions in Lake Forest to 7% less than 1990 levels by the year 2012. The Green Team is currently working to determine the current and historical Carbon Footprint⁴ for The City and expects to have a preliminary estimate and an Action Plan for achieving the reduction target by the end of 2009.

The majority of the organizations surveyed for this report implemented an adjusted schedule to benefit the environment or to benefit employees. This report provides an overview of potential effects on the residents, City employees, City operations and environmental benefits. Obviously a "green" benefit is desired and emphasized by this committee; however cost to implement an adjusted schedule and impact to the level of service to residents also needs to be considered. Depending on the definition of an adjusted schedule, different outcomes on the Carbon Footprint and level of service to the residents will be realized. While there are many ways to define an adjusted work week as shown below, more information from Human Resources is needed to determine if these schedules conflict with legal requirements for hours worked per week for each employee. With clear direction from the City Council and a completed Carbon Footprint baseline, the Green Team, in consultation with trained professionals, can provide a more comprehensive look at how the following models will affect The City of Lake Forest.

- **The 4-10 Model** (*Four, ten-hour days with a complete shut down on the 5th day*)
In this model, employees work four, ten-hour days. For the purposes of this report, we shall assume that the 4-10 model refers to a complete shut down of City buildings on the 5th work day of the week with the exception of emergency services such as police and fire or as otherwise needed. This model leads to reduced GHG emissions from the energy savings of closing one or more buildings for one additional day each week, and from eliminating one commuting day each week for employees.
- **Telecommuting Model** (*Four, eight-hour days in the office with one eight-hour day worked from home*)
In this model employees have the option to work from home through the use of a Virtual Private Network (VPN). This model improves the Carbon Footprint for The City and could save The City money in the long run. This model is already available to employees at the discretion of management. It eliminates one or more commuting days each week for those employees able to take advantage of telecommuting.
- **The Staggered Model** (*Four, ten-hour days with staggered work schedules allowing the organization to remain open 5 days/week with extended hours of service*)
In this model, employees stagger hours to cover a full shift with the goal of shortening the work week for employees. This model realizes GHG emissions reductions from reduced employee commuting, but energy usage could actually increase due to the extended work hours. The Green Team will determine the relative environmental impact from this model as part of the Carbon Footprint analysis. For that reason, it is not discussed at length in this report.

⁴ A Carbon Footprint is an estimate of the total annual amount of greenhouse gases (carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons) produced from the activities in the City (including energy usage, vehicles and equipment, water & sewage, and waste disposal) and is expressed in equivalent tons of carbon dioxide or CO₂.

- **The 9-80 Model** (*Four, nine-hour days, with a half day on Friday or alternating Fridays off, making 80 hours in a 2-week period*)
In this model, employees work 80 hours within a two week period with longer hours one week and a day off the following. While this model would have environmental benefits with the reduced number of commutes and potential for closing the office one day every-other week, due to legal ramifications, only exempt employees can participate in this model.

Various other government organizations throughout the nation have implemented adjusted work schedules. The most publicized is the state of Utah (population 2,550,063) which implemented the *Working 4 Utah* initiative in August, 2008, changing government service hours to 7:00 a.m. until 6:00 p.m., Monday through Thursday. This change affects approximately 17,000 state employees (80% of the workforce). Other organizations we reviewed regarding the implementation of an adjusted schedule include Fairfax, Virginia; Gainesville, Florida; Oakland County, Michigan; Will County, Illinois; and Brevard County Community College of Cocoa, Florida. Additionally, in an attempt to understand what local municipalities are doing in Illinois, a brief survey was distributed through the Northwest Municipal Conference. The results are attached to this memorandum.

Based on the research of some of these organizations, supplemented with various news articles on the topic, the Green Team looked at the impact of adjusted schedules (specifically 4-10s and Telecommuting) on residents, employees, operating cost savings to The City and environmental benefits for all.

Effect on Public Access to City Services and Impact on City Workforce

The City of Lake Forest is dedicated to providing excellent service to its residents. The primary consideration in instituting an adjusted schedule is the balance between potential impacts to residents, the environment, the “quality of life” of city employees, as well as any operational issues that may result from the new schedule. Both the 4-10 model and the Telecommuting model have advantages and disadvantages as described below and in the attached *Figures 1.1 and 1.2* at the end of this report.

4-10 Model

From an environmental standpoint, the 4-10 model provides a decrease in energy consumption and associated GHG emissions by closing one or more buildings one additional day each week and reduces the GHG emissions from daily commutes by City employees. The 4-10 model would however limit accessibility of City services to four days. Conversely, the 4-10 model would provide extended hours of service during those four days allowing some residents to access services before and after their eight-hour work day. One key advantage for employees of the 4-10 model is the additional day off per week to accommodate personal and family commitments and the potential reduction of unscheduled absences that can disrupt productivity.

The primary disadvantage for employees of a 4-10 model is the extended work day. Extending the length of the work day may adversely impact employees’ ability to meet personal and family obligations that are time sensitive and/or only occur in the evening. Coordination of child and adult daycare services, participation in after school activities, participation in continuing education, retention of secondary employment opportunities, coordination of van pools or public transportation and medical conditions that preclude a longer work day are examples of potential disadvantages. Additionally, current operations and expectations would need to change significantly in order to accommodate a complete shut down of City services for one additional day each week. This can be overcome with proper planning but at this point significant adjustments would need to be made for this model to work.

Telecommuting Model

The environmental benefits of telecommuting are realized by the reduction of CO₂ emissions through the elimination of one or more days of commuting by employees each week.

Telecommuting is a stable, reliable option. It has been used for years by forward-thinking companies to reduce energy consumption and traffic congestion and to offer employees the benefit of a flexible schedule. This model could be implemented for The City of Lake Forest with minimal impact to the current structure of the organization. The Telecommuting model allows employees to be accessible to residents during normal business hours, but may not be in the office for “face-time” unless planned in advance. This could be overcome using current technologies that allow for video conferencing and other telecommuting tools.

The telecommuting model may be advantageous as an incentive in recruitment and retention, enhancing morale and job satisfaction and reducing employee commuting expenses while still allowing the employees to be accessible to residents during business hours. From the case studies evaluated, it was clear that managers had to learn to manage by result instead of sight which increased trust in employees and raised productivity levels and morale.

A primary disadvantage of the Telecommuting model is that not all job functions lend themselves to working from home and that not all departments can participate in the program. The Green Team completed a preliminary survey of Department Heads to determine how various departments currently use adjusted schedules. It is included as Figure 3 at the end of the report. A more detailed analysis must be conducted to determine which jobs in which departments might be eligible for this option.

Additionally, at this time, The City may not be equipped to handle a significant increase in telecommuters. However this can be overcome with minimal cost and should be discussed with IT prior to implementation. IT staff is aware that there may be a need to increase the capacity for employees to work from home. While connection performance using a Virtual Private Network (VPN) technology may not be as good as internal performance, Broadband internet providers may provide adequate response time. Adequate internet connection would need to be provided by the employee in order to take advantage of this policy. Also, bandwidth-consuming applications such as GIS and graphics applications are not allowed through the VPN system because they consume too much bandwidth and will slow productivity.

The City has already taken important steps to improve telecommunication options in the new MS Building. The City currently uses VPN technology for those individuals working from home. VPN is a secure “tunnel” through the internet allowing employees to access The City’s secure network from a remote location. Improved VPN capabilities will be incorporated into the new MS building by increasing the bandwidth available to users. Increasing the bandwidth (the size of the incoming communication lines) will allow The City’s system to handle additional telecommuters. Reliability will also improve with the built in redundancy of telecommuting lines. For example, if the fiber line is cut, there will be a backup Sprint line available. Any employee with a home PC and a high bandwidth connection to the internet has the ability to work from home.

Savings in City Operating Costs

Computation of dollar savings for any type of adjusted schedule would be a very complex undertaking and the Green Team recommends that any further investigation in this area be

completed by a qualified energy consultant. Below are some cursory observations regarding cost and energy savings for both the 4-10 model and the Telecommuting model.

4-10 Model

The impact of 4-10 model on city operating costs is difficult to assess particularly because under current franchise agreements with local utility companies, The City does not pay for gas or electricity for the majority of the buildings. Real cost savings for The City will only occur over time if the entire organization, not including police and fire and other essential services, shut down for a day and there were no franchise agreements in place to cover the costs of gas and electricity for City-owned buildings. Additionally, any assessment done now would be based on the current Municipal Services building and may not be relevant when the organization moves to the more energy efficient building out west.

The Building Maintenance Department currently maintains approximately thirty City-owned buildings. These buildings range in size and use and include field houses, garages and multi-building facilities such as Elawa Farm. Various techniques are used to reduce energy use in these buildings. For example, some of the thermostats in these buildings have an occupied/unoccupied feature that allows the temperature to be lowered during off-peak times. The lights and exhaust fans are also turned off during off-peak hours in the Field Houses. Multi-use buildings such as the Rec Center have multiple settings to realize different amounts of energy use based on the use of a particular area. There are however some challenges to reducing the energy use of the buildings during off-peak hours. Some buildings, such as the police and fire buildings, are occupied 24/7. Others have extended hours for resident participation, such as the Rec and Senior Centers, while others have evening meetings, such as City Hall and the Municipal Services Building. Regardless of the building's use, thermostats cannot be dropped too low due to the risk of damaging pipes in cold weather.

Currently The City does not change the climate for off-hours such as evenings and weekends in the Municipal Services Building however plans show the new Municipal Services building to be equipped with this technology in-line with good energy saving practices. This type of adjustment is critical to see energy savings and environmental benefits; however because of the current franchise agreements, no real operating savings would be realized at this time. While the temperature settings in the new Municipal Services Building are yet to be determined, it is assumed that the additional two hours of the extended workday four days per week would not significantly increase daily costs because the energy management system at the new Municipal Services Building could be programmed for activation and shut-down in excess of the ten hour operating schedule of the 4-10 model. However, if the building is shut down for a day there may be some net cost savings on both energy and operational costs such as janitorial services.

Telecommuting Model

As mentioned above, the new Municipal Services Building will be temperature controlled to conserve energy. Since there are several employees who come to the office during off-hours, there may be some merit in exploring a telecommuting policy that allows people to work from home instead of coming into the office when the climate may be undesirable for working after hours. Additional cost savings may result from a telecommuting policy where The City no longer takes on the cost responsibility of running individual PCs during the day. However this may be a disadvantage to employees who are forced to cover that cost at home. The flexibility of working from home may mitigate this disadvantage as there are cost and time savings for the employee with the reduced number of commutes.

Environmental Benefits

According to an article from [The Oil Drum.com](#) titled “The Four Day Work Week: Sixteen Reasons Why This Might Be an Idea Whose Time Has Come” written by Professor Goose (September 2007), 60-70 percent of urban air pollution is caused by cars. If the 4-10 model and/or Telecommuting model were to be applied city-wide to non- 24/7 services and facilities and related support operations, the potential reduction in GHG emissions, air pollution, and traffic congestion could be meaningful. It should be noted that while eliminating one work day each week reduces the number of miles an employee *commutes*, it does not necessarily translate to employees driving less during the week as employee’s activities on their day off cannot be regulated.

According to the Environmental Protection Agency, an estimated 78.52 metric tons of carbon dioxide equivalent could be eliminated per year for every 100 employees who commute one less day per week. The reduced vehicle usage associated with the 4-10 model and/or Telecommuting model would result in reductions of fossil fuel consumption and associated GHG. By eliminating one day of commuting into work each week (with either the 4-10 or Telecommuting model) employees will eliminate 380,276 miles traveled in a car each year and save 18,416 gallons of gasoline, a non-renewable resource. At the current price of gas (approximately \$1.85/gallon at the time of writing⁵) employees will collectively save a total of \$34,070/year. This would also reduce The City’s Carbon Footprint by 181 tons (164 metric tons) of CO₂ each year, which is a meaningful percentage of our total footprint⁶. This is the same amount of CO₂ absorbed by 37 acres of pine or fir forests each year⁷. The following chart describes the impact that one less day of travel each week for all full-time employees would have for each work destination. More information on The City’s commuting statistics can be found at the end of this report in Figure 2.

Greenhouse Gas Emissions saved per year with a 4-Day Work Week or equivalent

Work Destination	Number of Employees	Annual Greenhouse Gas** Savings (50 days not Commuting)		
		Gallons of Gas used*	Carbon Dioxide (Tons) (CO ₂)	Nitrogen Oxide (Lbs) (NO _x)
City Hall	9	553	7	41
New MS	105	8,356	81	514
Rec Center	19	1,479	15	91
Public Safety	98	6,810	66	419
Cemetery/Water Plant	11	879	9	54
Golf Course	3	293	3	18
Senior Center	3	46	0	3
CLF ANNUAL SAVINGS (50 days without commuting)	248	18,416	181	1,140

*Gas miles based on miles traveled from home destination to work destination. For the purposes of this report, miles for employees living in Lake County measured using City of Lake Forest’s GIS system; miles for employees living outside Lake County estimated using an average of 55.44 miles round trip/person

**Emissions calculated using CACP (Clean Air Climate Protection) Software

⁵ February 2, 2009

⁶ The Green Team will determine the actual impact this might have on achieving our Carbon Footprint reduction targets in the Action Plan to be completed later this year.

⁷ 4.4 acres of pine or fir forests absorb 1 metric ton of CO₂ each year (see <http://www.epa.gov/cleanenergy/energy-resources/refs.html>)

Additional Considerations for an Adjusted Schedule:

If The City were to consider implementing one of the models discussed in this report, further research would be required. Four areas identified by this committee requiring further review include: the impact on City IT services, an assessment of which model best fits individual departments, how employees are compensated for holidays and personal time, and an assessment of the expectations and interest of Lake Forest residents and employees.

Possible increase in demand for IT services and related costs:

- Need to increase e-government services that residents currently access in person on the traditional fifth work day of the week. Not all City departments currently have a strong on-line presence. A supportive and informative website is critical regardless of a change in schedule or telecommuting policy and would be greatly appreciated by residents. Staff hours and costs to develop effective e-government services citywide are needed.
- Responsibilities would need to be clearly outlined for IT staff regarding support for the 24/7 operations on the fifth day when IT staff would not be working if The City moved to a 4-10 model. This however is similar to how IT-support works today.
- Some organizations require inspections of home offices for compliance with a set of guidelines. If The City were to adopt this type of policy, IT staff may be required to approve home office space for telecommuters.

Assessment of which model best fits City operations

Before seriously considering a move to an adjusted schedule, The City would need to carefully and systematically assess which functions could be performed in a four-day work week, from home, or with extended hours. For example, twenty-four/seven operations such as public safety and some public works functions would not lend themselves to the 4-10 model; however individual employees within these departments may be able to work an adjusted schedule through telecommuting to conserve energy and reduce fossil fuel consumption. If there are concerns about the length of the work day with the 4-10 model, perhaps the 9-80 model is more feasible for certain departments despite the fact that it realizes less environmental benefit since this model only closes the office one day every other week. A summary of adjusted schedules already implemented by certain City departments is included at the end of this report as Figure 3.

Employee Compensation

Additional costs could be incurred due to the increase in holiday pay compensation if The City moves from an eight to ten-hour workday. However, some organizations have addressed this issue by maintaining 8-hour paid holidays with the option to take 2-hours unpaid, use flex time to make up the hours, or use 2-hours of personal time. Since the employees, as part of the 4-10 model receive approximately 50 Fridays off per year, the holiday compensation has not been a significant deterrent in moving toward this model. The City will need to clearly state the Holiday Compensation policy if an adjusted schedule was to be implemented. Holiday/Personal time would not be affected with a telecommuting policy.

Resident and Employee Surveys

The majority of the organizations evaluated solicited community and employee input to evaluate if the residents would prefer to have access to City services five days a week from 8a.m-4:30p.m or if extended hours Monday through Thursday would better serve the residents. Surveys of employees

would provide useful information on the feasibility of these two models for personal and professional reasons. In an effort to ensure consistent service to residents, surveys of the employees and residents should be completed prior to a Green Team recommendation of an adjusted schedule for The City of Lake Forest.

In addition to further review of the considerations mentioned above, the Green Team will quantify the relative impact of each model on The City's GHG emissions upon completion of the Carbon Footprint analysis later in 2009.

Recommendation

Given the complexity of issues associated with moving to an adjusted schedule, it would be helpful to know how the City Council prioritizes the importance of service levels, environmental benefits, employee satisfaction and costs. Upon preliminary consideration of the information, the most GHG reduction occurs with the complete shut down of City facilities one day each week in conjunction with encouraging a telecommuting policy that would allow employees to work the standard hours of operation from a remote location. Since not all City operations lend themselves to one particular model, and since current operations will permit alternative schedules, the Green Team and City Manager recommend a combination of models to achieve a reduction in energy use and fossil fuel consumption. Additionally, the Green Team will work to encourage and support alternative modes of transportation such as carpooling and public transportation. A short-term pilot program would be a useful tool to help Department Heads determine if adjusted schedules will work for their operations.

FIGURES

Figure 1.1: Four (4)-Day Work Week: Summary of Advantages and Disadvantages for Residents, City of Lake Forest and the Environment

	Residents	City/Employees	Environment
Advantages	Office is open beyond the typical work day	Less absenteeism (personal appointments are made on day off)	Less paper used with improved website
	Improved Website	Increased productivity for some departments	Energy savings from closing building for a day
	Consistency of staff - Less turn-over of staff	50 additional days off per year for employees	Less pollution
		Reduced commuter costs for employees	
		Less set-up and tear-down time over the course of the week (jobs more productive)	
Disadvantages	Office is closed and inaccessible one day each week	Not all departments can shut down for a day and maintain same level of service	NONE
	Building projects may be slowed due to one less day of staff availability	Safety and productivity may be affected due to physical or mental fatigue from working 10-hour days	
	Adjustment period to understand schedule	Childcare may not be available and longer hours may result in less time spent with family	

The shaded squares in the charts are items realized with both models

FIGURES

Figure 1.2: Telecommuting Model: Summary of Advantages and Disadvantages for Residents, City of Lake Forest and the Environment

	Residents	City/Employees	Environment
Advantages	More parking spaces available to the public	Reduced traffic congestion throughout the week	Less paper used with improved website
	Improved website	Less interruptions during the day leading to increased productivity	One day less (or more) of commuting each week
	Healthier and happier employees	Reduced costs for City to run individual PC's	Less congestion
	Office is open hours that are consistent with current schedule	Employees can still service residents even when weather or sickness prohibits them from coming into the office	Less pollution
		Reduced commuter costs for employees	
Disadvantages	Staff not always available for "face-time"	Not all jobs are conducive to working from home	NONE
	Meetings need to be scheduled based on employee's established schedule (reduces flexibility in scheduling meetings)	VPN must be available to all employees; the current system may need to be expanded	
		Potential increased cost to employee to run home PC	
		Compatibility issues with home computers	

*** The shaded squares in the charts are items realized with both models***

FIGURES

Figure 2: Distribution of Employees and Daily Commute Statistics

Work Destination	FULL TIME EMPLOYEE DAILY COMMUTE STATISTICS				DEPT. ANNUAL SAVINGS (50 days without commuting)***		
	Home Destination	Number of Employees	miles traveled per day (round trip)	Gallons of Gas used per day	Gallons of Gas used per year	Carbon Dioxide (Tons) (CO ₂)	Nitrogen Oxide (Lbs) (NO _x)
City Hall	Lake County*	7	157.16	7.66	383	4	24
	Non-Lake County**	2	110.88	3.4	170	3	17
	TOTAL	9	268.04	11.06	553	7	41
New MS	Lake County*	79	1,991.00	96.94	4,847	47	298
	Non-Lake County**	26	1,441.44	70.18	3,509	34	216
	TOTAL	105	3,432.44	167.12	8,356	81	514
Rec Center	Lake County*	11	164.00	7.98	399	4	25
	Non-Lake County**	8	443.52	21.6	1,080	11	66
	TOTAL	19	607.52	29.58	1,479	15	91
Public Safety	Lake County*	79	1,743.60	84.9	4,245	41	261
	Non-Lake County**	19	1,053.36	51.3	2,565	25	158
	TOTAL	98	2,796.96	136.2	6,810	66	419
Cemetery/ Water Plant	Lake County*	8	194.82	9.48	474	5	29
	Non-Lake County**	3	166.32	8.1	405	4	25
	TOTAL	11	361.14	17.58	879	9	54
Golf Course	Lake County*	2	65.08	3.16	158	2	10
	Non-Lake County**	1	55.44	2.7	135	1	8
	TOTAL	3	120.52	5.86	293	3	18
Senior Center	Lake County*	3	18.90	0.92	46	0	3
	Non-Lake County**	0	0.00	0	0	0	0
	TOTAL	3	18.90	0.92	46	0	3
City of Lake Forest	Lake County*	189	4,334.56	211.04			
	Non-Lake County**	59	3,270.96	157.28			
	DAILY TOTAL	248	7,605.52	368.32			
ANNUAL SAVINGS (50 days without commuting)	Lake County*	189	216,728.00		10,552	103	650
	Non-Lake County**	59	163,548.00		7,864	78	490
	ANNUAL TOTAL	248	380,276.00		18,416	181	1,140

*Miles measured using City of Lake Forest's GIS system

**Miles estimated using an average of 55.44 miles round trip/person

***Emissions calculated using CACP (Clean Air Climate Protection) Software

FIGURES

Figure 3: City of Lake Forest Department Adjusted Schedules Survey - 2009

Department	Number of Employees	Telecommute Currently	Adjusted Schedule Current
Human Resources	2	1 as needed	NO
Parks and Rec	27	5-7 see below	YES See below
<i>Parks & Golf</i>	9	0	YES <i>Parks staff work a half day on Friday with other weekday and weekend schedules to equate to 40 hours and still cover services 7-days per week.</i>
<i>Recreation</i>	18	5-7 as needed	YES <i>All of the full-time Recreation staff receive flexible work schedules due to the need to cover programs and services between the hours of 5:30a-10p</i>
Office of City Manager	10	0	NO However if the front counter is able to be staffed at all times, 3-5 could work an adjusted schedule.
<i>Clerks Office</i>	2	0	
<i>LFTV</i>	2	0	
<i>OCM</i>	6	0	
IT	7	2 on a regular basis	YES IT currently has 2 staff telecommuting one day each week and 1 staff member working a flex schedule of 6:30a-3p
Community Development	16	0 however 3 employees have access through VPN to work from home evenings and weekends	YES 2 inspectors work an adjusted schedule: 7-3:30 M-F Having staff available 5 days a week to respond to requests for assistance, permits, complaints and to answer questions is important.
Police	63	0	YES The department works adjusted schedule to provide 24/7 service to residents
Fire	38	0	YES The department works adjusted schedules however someone needs to be available at all times due to the nature of the work.

Figure 3 Continued

Department	# of Employees	Telecommute Currently	Adjusted Schedule Current
Public Works	98	1 as-needed	YES <i>see below</i> Public works employees do not work the standard 8a-4:30p shift. Instead they typically work 6:30a-3p. Sections could not start any earlier in the day so their 10 hour shift would require them to stay later in the day. Most sections could implement a 4-day work week as long as there was sufficient coverage M-F during normal business hours. This schedule would have to be tested to determine its feasibility.
<i>Administration</i>	5		<i>No</i>
<i>Building Maintenance</i>	10		<i>No</i>
<i>Cemetery</i>	4		<i>No</i>
<i>Engineering</i>	7		<i>No</i>
<i>Fleet Maintenance</i>	6		<i>No</i>
<i>Forestry</i>	20		<i>Staggered Schedule</i>
<i>Sanitation</i>	15		<i>4-day work week due to collection schedule</i>
<i>Streets</i>	11		<i>No</i>
<i>Water Plant</i>	9		<i>Open 24 hours.</i>
<i>Water/Sewer</i>	11		<i>No</i>
Finance	7	2 as needed	YES 2 work an adjusted schedule: 7-3:30 M-F 7-4:30 M-Th with a half day on Friday
CROYA	Information Requested		
Senior Center	Information Requested		

SUPPLEMENTAL INFORMATION

Communities Working an Adjusted Schedule

Source: <http://www.cnn.com/2008/LIVING/worklife/08/12/shorter.workweek/index.html#cnnSTCOther1>

Westfield Indiana

Westfield, Indiana

Half of the Department of Public Works' 64 employees have been trying four-day workweeks since late July. Not everyone gets the same extra day off, allowing the department to maintain its Monday-Friday services.

The city hopes use of its vehicles and other equipment will be more efficient and, therefore, cheaper.

It also hopes workers will save money by commuting to work less often. After the test ends in November, the city, which has a population of about 24,000, could put other departments on four-day weeks.



State workers in Utah

Utah

About 17,000 of the state's 24,000 executive branch employees started working four-day workweeks on August 4.

Most state agencies will be closed Friday, Saturday and Sunday. With participating employees now working 10-hour days, those agencies will be open one extra hour in the morning and an extra hour in the evening Monday through Thursday.

Because the move will let the state close 1,000 of its buildings an extra day a week, state officials hope to save about \$3 million on energy bills in one year.



State workers in Hawaii (telecommuting)

Hawaii

The state is trying a four-day-a-week schedule for the Department of Human Resources Development's 111 workers.

From August through October, the department's offices in Honolulu will have expanded hours -- 7:15 a.m. to 6 p.m. -- Monday through Thursday.

The governor's office says it hopes closing on Fridays will decrease electricity costs and allow workers to save fuel money. The state might try the schedule at other departments.



Birmingham, Alabama

Birmingham, Alabama

Although Birmingham started giving 2,460 of its employees an option for a four-day week on July 1, city offices are still open five days a week because not everyone has the same extra day off.

Some take Friday; others take Monday. Those choosing the four-day week (87 percent of those eligible, so far) work 10-hour days, but offices are not open longer than usual -- the 10-hour folks use their extra time to catch up on things like paperwork, the mayor's office says.

Most police and fire department employees aren't eligible.



Cocoa, Florida

Cocoa, Florida

Brevard County Community College says it saved \$267,000 in one year by operating four days a week in the summer (Monday-Thursday) and four and a half days in the spring and fall.

The college says it saved by turning down air conditioning and heating systems during the extra off time.

With the savings, the college hired 10 full-time faculty members. It will start a four-day week year-round this fall.



Avondale, Arizona (Retention and Recruitment Committee created program)

Avondale, Arizona

In a trial run that started June 2, City Hall moved from a Monday-Friday schedule to Monday-Thursday (7 a.m. to 6 p.m.).

City employees are working 10-hour days with a break for lunch.

The city, which has about 70,000 residents, said workers will save fuel money by having one fewer day to commute to work.



Wayne County, North Carolina

Wayne County, North Carolina

County officials estimate they'll save \$300,000 yearly on utility bills with their plan.

About half of the county's 1,032 employees recently were put on a four-day-a-week, 10-hour day schedule. The move closes a county office building - which includes departments such as health and social services -- one extra day a week (Friday).

Some county operations, such as courts and the sheriff's office, will not use the new schedule.



SUPPLEMENTAL INFORMATION

Illinois Northwest Municipal Conference Survey Results

October 2008

Municipality	Does your organization currently work an adjusted schedule?	Would you consider an adjusted schedule for your organization?	Hours open to the Public	Dept works an adjusted schedule	Dept works staggered hours?	Entire Dept works the same hours?	When was the adjusted schedule implemented?	Is telecommuting an option?	If there is an adjusted schedule, is there an increase in service level to residents vs. a typical schedule?
Arlington Heights	No.	Yes.	City Hall, Community Development, Bldg Dept, Engineering, IT, Finance - 8:00 am - 4:30 pm. P.W. - 7:00 - 3:30 pm.	City Hall - no, Public Works - no, Community Development - no, Bldg. Dept. - no, Engineering - no, IT - no	City Hall - no, Public Works - no, Community Development - yes, Bldg. Dept. - no, Engineering - yes, IT - no	City Hall - yes, Public Works - yes, Community Development - yes, Bldg. Dept. - yes, Engineering - yes, IT - yes		City Hall - no, Public Works - no, Community Development - no, Bldg. Dept. - no, Engineering - no, IT - no	
Barrington	No.			City Hall - no, Public Works - yes/no, Planning - no, Bldg. Dept. - no, Engineering - yes/no, IT - no, Finance - no, Golf - no.	City Hall - yes, Public Works - yes, Planning - yes, Bldg. Dept. - yes, Engineering - yes, IT - yes, Finance - yes, Golf - yes.	City Hall - no, Public Works - no, Planning - no, Bldg. Dept. - no, Engineering - no, IT - no, Finance - no, Golf - no.			
Buffalo Grove	Yes, some departments.	Yes.	Engineering and P.W. works 4-10 hour days May to September.						
Carpentersville	No.	Yes.							
Des Plaines	No.	Yes.	8:00 am - 4:30 pm						
Glencoe	No.	No.							
Grayslake	No.	No.							
Inverness	No.	No.							
Lake Barrington	No.	No.	City Hall - 8:00 am - 3:00 pm Bldg Dept. - 8:00 am - 3:00 pm Engineering - consultant. Finance - 8:00 am - 3:00 pm	City Hall - no Bldg Dept. - no	City Hall - no Bldg Dept. - no	City Hall - yes Bldg Dept. - yes		City Hall - no Bldg Dept. - no	
Park Ridge	No.	No.							
Prospect Heights	No.	No.							
Rolling Meadows	No.	No.							
Schaumburg	No.	Yes.							
Streamwood	Yes.	Yes.		City Hall - no, Public Works - yes, Community Development - no, Bldg. Dept. - no, Engineering - no, Finance - no.	City Hall - yes, Public Works - yes, Community Development - yes, Bldg. Dept. - yes, Engineering - no, Finance - yes.	City Hall - no, Public Works - no, Community Development - no, Bldg. Dept. - no, Engineering - yes, Finance - no.		No.	P.W. - Yes, allows more service hours during peak activity periods. Community Development - Yes, service is provided into evening and on weekends.
Vernon Hills	No.	Yes.	We have had flex hours within our Licensing, Permits and Registration area (Clerks office/bldg dept), however, due to the small number of employees (4) coverage became an issue and we had to discontinue. Now they switch off starting at 7:30 am and 8:30 am (working 8 hour days) and that seems to work well. Also, our public works dept worked 4 10 hour days a few summers ago. We talked to them about offering the same this summer, but most of the employees were not interested. We do not offer telecommuting at this time, nor has it been requested.						

SUPPLEMENTAL INFORMATION

Why are greenhouse gas (GHG) emissions important?

The **Greenhouse Effect** is a natural and important heat trapping process. The energy from the sun warms the earth's land and water. This heat then radiates and rises into the **atmosphere**. The top of our atmosphere, however, acts like a transparent barrier, allowing light and heat energy to pass into the earth's atmosphere, but not allowing it all to escape. Gases in our atmosphere trap the heat and hold it close to the earth, similar to the glass of a greenhouse holding heat and moisture inside the building. This is why scientists call this process the Greenhouse Effect.

The gases involved in trapping heat near the earth are carbon dioxide, methane, chlorofluorocarbons, nitrous oxide, and water vapor. If there are higher amounts of certain gases in the atmosphere, then more heat will be trapped and it will affect the climate on earth. Scientific research shows that greenhouse gases, specifically **carbon dioxide (CO₂)**, blanket the earth in amounts that are much higher now than ever before. As a result, our atmosphere is trapping more heat leading to extreme disruptions of worldwide weather patterns and a gradual increase of the earth's average temperature.

In 2007 the United Nations Intergovernmental Panel on Climate Change (IPCC), a group of more than 2,500 scientific experts from 130 countries, issued an alarming report stating that the warming of the climate system is "unequivocal". The IPCC also stated that most of the observed increase in global average temperatures since the mid-20th century is "very likely" due to the observed increase in anthropogenic (man-made) GHG concentrations.⁸ The primary man-made greenhouse gases in the United States and their sources are summarized below.

Greenhouse Gas	% of 2007 US GHG Emissions⁹	100-year Global Warming Potential (GWP)¹⁰	Sources
Carbon Dioxide (CO ₂)	83%	1	Combustion of fossil fuels such as petroleum products, coal, natural gas
Methane (CH ₄)	10%	23	Livestock, coal mines, natural gas operations, organic waste decay, landfills
Nitrous Oxide (N ₂ O)	5%	296	Use of nitrogen fertilizers, combustion of fossil fuels, certain industrial and waste management processes
Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF ₆)	2%	> 9,000	A variety of industrial processes

⁸ See http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf

⁹ See <http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html>

¹⁰ GWP is a measure of how much a given mass of GHG is estimated to contribute to global warming. It is a relative scale which compares the gas in question to that of the same mass of CO₂ (whose GWP is by definition 1). See http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/wg1/248.htm

Can our earth handle CO₂?

Our earth is capable of handling carbon dioxide production. For example, humans naturally exhale CO₂ with every breath, and plants naturally take in this same CO₂ to use for photosynthesis. It is not a harmful gas when kept in balance. With human activity overproducing CO₂ and over cutting our trees, there is too much of it for plants to keep up.

The earth's climate is familiar with change. The difference now is that instead of a climate change happening over millions of years, as when a sudden cooling 65 million years ago is thought to have ended the age of dinosaurs, it is now happening in hundreds of years. Scientific evidence strongly suggests that human influence is the reason that climate change is happening at this rapid pace and that natural cycles cannot compete.

Scientists know what the climate was like millions of years ago by examining fossils, deep sea sediments, rock decomposition and ice cores that record changes in climate. There is increasing evidence from these sources that significant and rapid changes are occurring to the earth's climate. It is a situation directly linked to human activity and deserves our attention.

What are we doing?

In 1997, international leaders met in Kyoto, Japan to sign a treaty that establishes legally binding commitments for the reduction of GHG. The objective of the treaty is to achieve "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." This treaty, called the **Kyoto Protocol**, has subsequently been ratified by 183 countries. The United States, although a signatory to the Kyoto Protocol and the world's largest per capita emitter of CO₂ from fossil fuels, has neither ratified nor withdrawn from the Protocol. The signature alone is symbolic, as the Kyoto Protocol is non-binding on the US unless ratified.

In 2005, Seattle Mayor Greg Nickels launched the **US Mayors Climate Protection Agreement** to advance the goals of the Kyoto Protocol in the US through local leadership and action. By December, 2008, more than 910 mayors representing over 81 million citizens have signed the Agreement.

Under the Agreement, participating cities commit to take the following three actions:

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

Mayor Rummel signed the US Mayors Climate Protection Agreement in December of 2007, pledging to reduce greenhouse gas emission by 7% below 1990 levels by the year 2012.

The Green Team is in the process of establishing the baseline Carbon Footprint for The City and identifying the actions required to achieve the committed reductions. It is now up to individual American citizens, the citizens of Lake Forest, to decide how important these reductions are for their future, and for the future of their children and grandchildren¹¹

¹¹ Adapted from U.S. Environmental Protection Agency and the Vermont Earth Institute, and the following websites:

<http://www.du.edu/issa/documents/JosieElbertCO2emissionactivity.pdf>

<http://www.commondreams.org/views04/0130-11.htm> How Global Warming May Cause the Next Ice Age This article was adapted from the new, updated edition of "[The Last Hours of Ancient Sunlight](#)" by Thom Hartmann