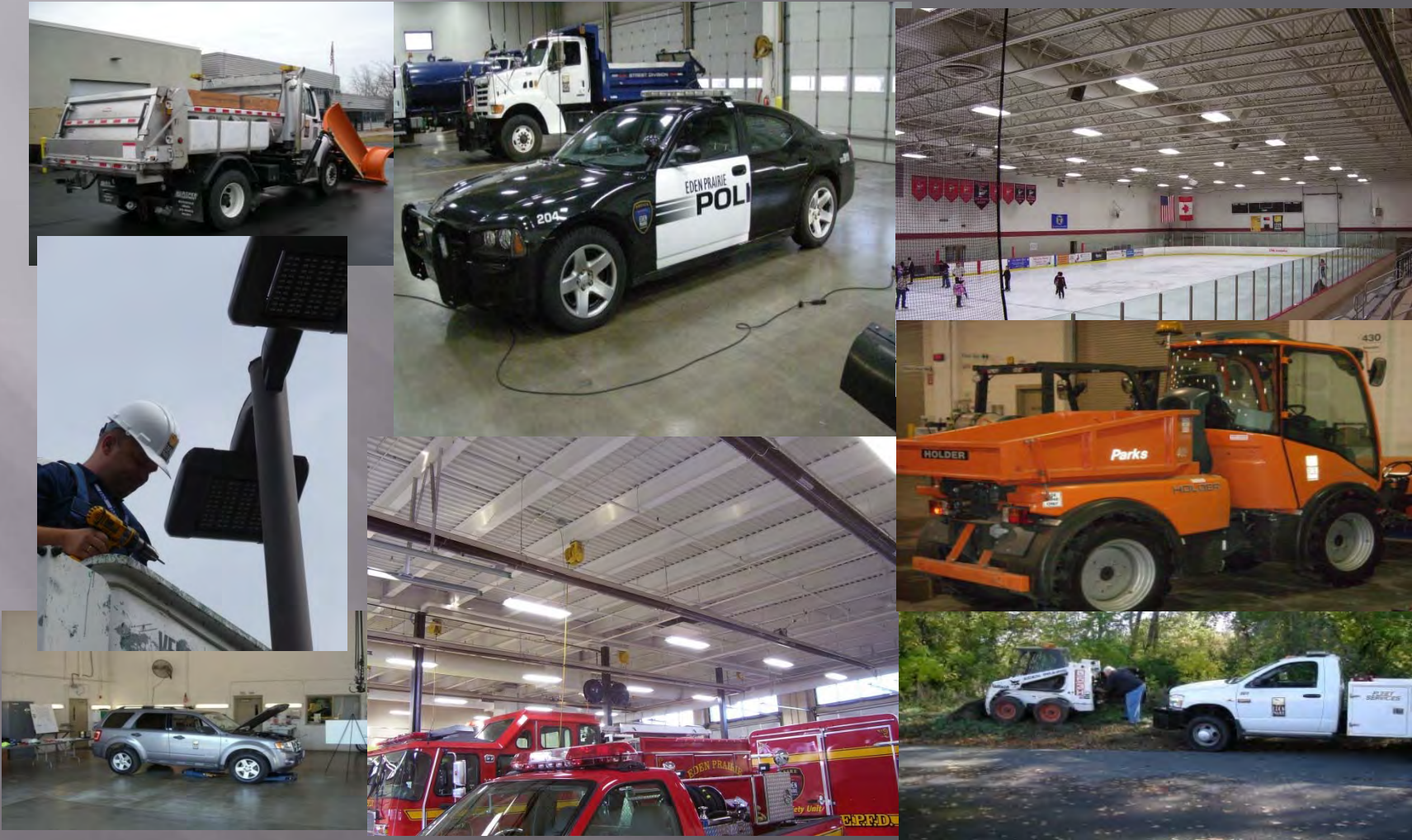


# 20/40/15

## City Council Workshop September 16, 2104



# Facilities

## Background / Goals

- ▣ 20% energy efficiency improvement in City owned buildings by 2015
- ▣ Base year for comparison is 2005
- ▣ Phase 4 completed December 2013
- ▣ Phase 5 underway in 2014

# Strategies

## Reduce energy consumption in City owned buildings

- ▣ More efficient lighting
- ▣ Motion sensors
- ▣ Photo (lighting level) sensors
- ▣ Schedules for energy management
- ▣ Staff Training
- ▣ More efficient HVAC
- ▣ Heat recovery heat exchangers

# Strategies

## Reduce energy consumption in City owned buildings (continued)

- ▣ Reduced water flow fixtures and shower heads
- ▣ Install additional insulation during re-roofing projects
- ▣ Renewable energy (solar, geothermal & wind)

# Phase 4 Completed in 2013

- ▣ Ice Rink Improvements
  - ▣ Rink-2 conversion from Freon to ammonia refrigerant



# Phase 4 Completed in 2013

- Low E ceilings in all three rinks



# Phase 4 Completed in 2013

- Rink -2 heat recovery for sub-floor heating and snow melt pit



# Phase 4 Completed in 2013

- Rink-3 waste heat recovery fan-coil unit for space heating





# Phase 4 Completed in 2013

- Variable speed drives on exhaust fans and makeup air units in Rink-2
- Variable speed drives on cooling tower fans
- ▣ Fire station HVAC replacements
  - Furnaces replaced with 90% efficient units
  - AC cooling units replaced with 15+ SEER efficient

# Annual Energy Savings

- ▣ Annual energy savings for Phase 4 projects completed in 2013 is \$60,000
- ▣ The cost of the Phase 4 energy initiatives is approximately \$500,000 for a payback of less than 9 years

# Total Energy Savings to Date

- ▣ At the end of 2012, the City had completed Phase 3 with a cumulative total annual savings of \$190,000
- ▣ Adding the 2013 Phase 4 savings brings the total annual savings to \$250,000
- ▣ Compared to the base year of 2005, the City now saves \$1,000,000 every four years in reduced energy costs.

# Phase 5 Projects Underway for 2014

- ▣ High efficiency HVAC equipment for the Aquatics Expansion project including waste heat recovery heat exchangers
- ▣ High efficiency lighting and HVAC improvements at park shelters and smaller buildings
- ▣ High efficiency LED lighting to replace 46 high pressure sodium street lights

# Phase 5 Projects Underway for 2014

- ▣ Photo-voltaic solar panel system at the Community Center



# Can we reach the 20% goal?

- ▣ Today we are at 18% improvement
- ▣ Phase 5 projects should get us to 20%

# Moving Forward in 2015

- ▣ Investigate the possibility of waste oil heating boiler at Maintenance Facility
- ▣ Investigate the possibility of geothermal heat recovery at the Water Plant
- ▣ Continue to upgrade to more efficient equipment and lighting where cost effective as older equipment reaches the point where it must be replaced

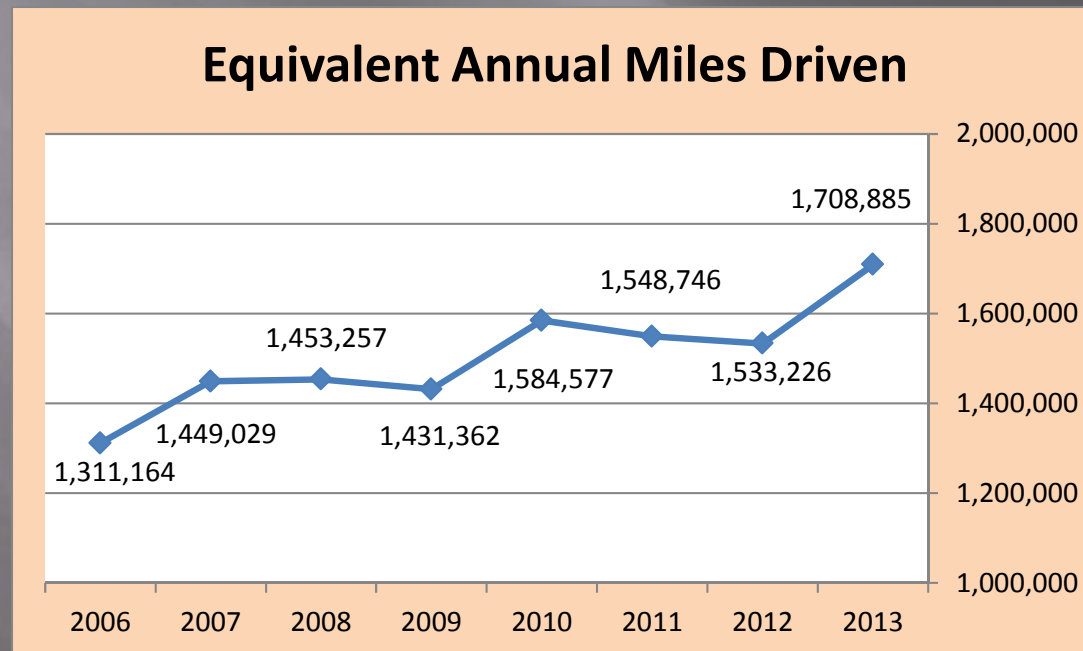
# Fleet Services Background / Goals

- ▣ 40% increase in fuel economy by 2015
- ▣ Increase the use of renewable fuels
- ▣ Reduce impact to the environment
- ▣ Reduce operating costs



# Fleet Profile

- ▣ 250 active vehicles & equipment in fleet
- ▣ Size ranging from tandem axle dump trucks to electric utility vehicle



# Strategies

- ▣ Right size fleet
- ▣ Schedule replacements with fuel efficient vehicles
- ▣ Employee training / participation
- ▣ Renewable fuels/ B20 biodiesel / electric
- ▣ Electric vehicles
  - Currently 6 hybrid electric vehicles
- ▣ New technologies
  - 26 vehicles with cylinder deactivation

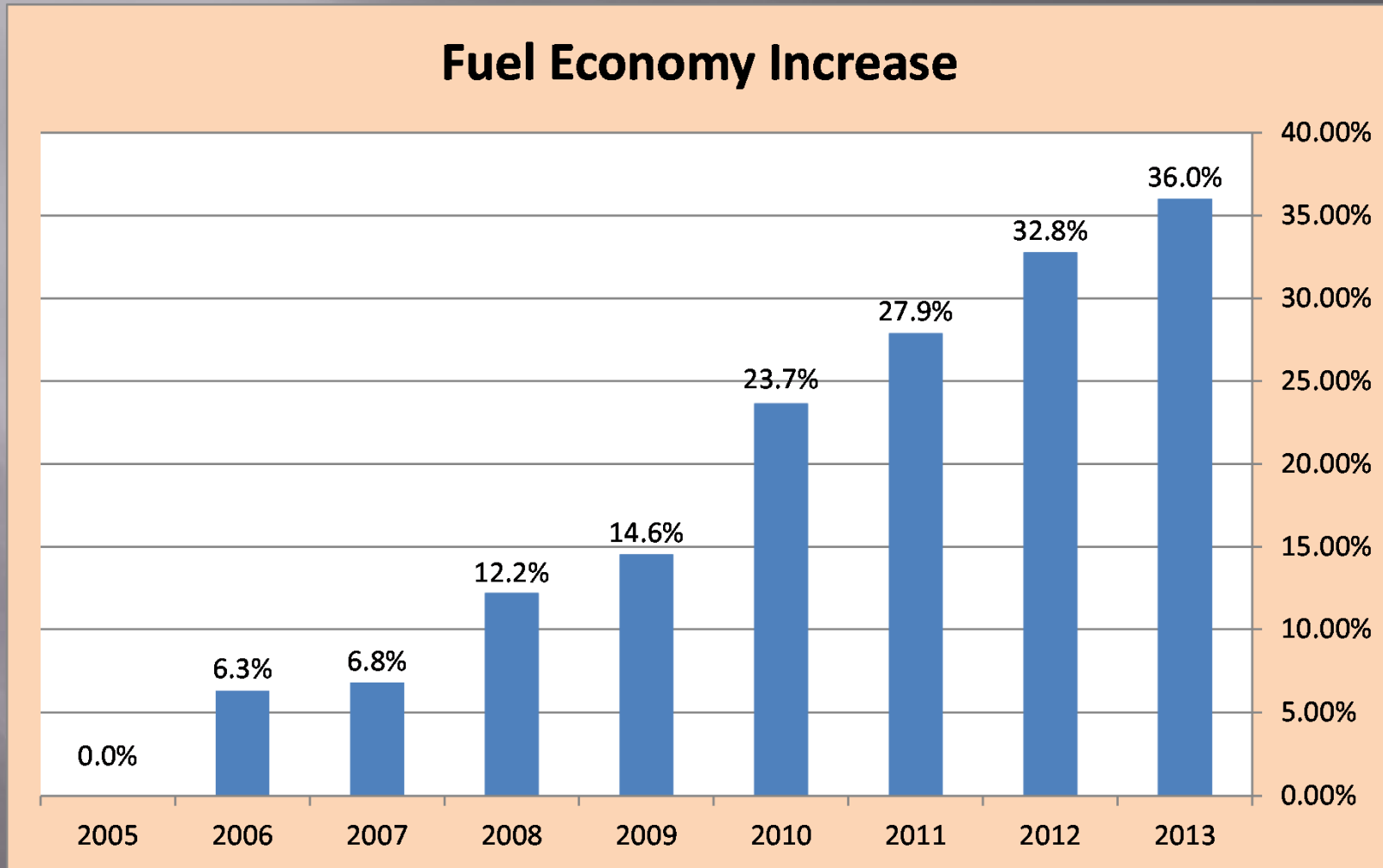
# Chevrolet Volt 90 - 100 MPG Equivalent Mileage



# Accomplished in 2013/2014

- ▣ Replaced an additional 4 pickups with fuel efficient Ford Escapes
- ▣ Added 1 Ford Fusion hybrid to Police Dept.
- ▣ Downsized engine horsepower on new heavy duty truck orders to reduce fuel consumption and better match the power curve for optimal performance
- ▣ Initiated Fuel Miser Award program

# Fuel Economy Results



# Can we get there?

- ▣ 4 % to go
- ▣ Continue to Right-Size fleet for optimal performance for intended functions
- ▣ Phase-in additional electric/hybrid & plug in vehicles where cost effective and appropriate
- ▣ Implement and communicate operational guidelines where appropriate to reduce fuel use (i.e. Reduced Idling Program)

# Moving Forward

- ▣ Continue to review and evaluate alternative/renewable fuel options and resources
- ▣ Research additional fleet size reductions by improving utilization of existing vehicles
- ▣ Continue working with local and national fleet manager organizations & conservation groups
- ▣ Begin discussions on future initiatives

# Questions

(Old 12 MPG)



(New 25 MPG)

