

Appendix B: Central Ohio RapidFire Technical Assumptions

Transportation	
Fuel economy	On-road passenger vehicle average: 20.7 mpg estimated based on MORPC regional vehicle mix and EIA average performance for light-duty vehicles (short/long wheelbase, including cars and light trucks) for 2012.
Fuel price	\$5 per gallon (2014 dollars)
Auto operating cost	\$0.63 per mile (2014 dollars), including ownership and maintenance. AAA Your Driving Costs 2013 data, including depreciation, insurance, finance charges, maintenance, and tires.
Transportation fuel emissions	19.9 lbs carbon dioxide equivalent (CO ₂ e) per gallon, statewide average
Buildings	
Baseline energy use of buildings	<p>Energy Information Administration (EIA) Residential Energy Consumption Survey 2009 average annual energy use per housing unit by type for East North Central Region.</p> <ul style="list-style-type: none"> Rural lot single family: 11,980 kWh; 970 therms Larger lot single family: 11,980 kWh; 970 therms Smaller lot single family: 11,980 kWh; 970 therms Townhome: 8,035 kWh; 750 therms Multifamily: 6,550 kWh; 650 therms. <p>Commercial energy use: baseline averages by sector estimated based on EIA Commercial Buildings Energy Consumption Survey data, 2003 (published 2006) and job sector/floorspace distribution among categories.</p> <ul style="list-style-type: none"> Retail: 21.9 kWh/sf; 0.86 therms Office: 18.2 kWh/sf; 0.43 therms Warehouse: 10.9 kWh/sf; 0.30 therms Civic/Institutional: 20.3 kWh/sf; 0.68 therms
Electricity price	\$0.12 per kWh, EIA state average.
Natural gas price	\$0.85 per therm, EIA state average.
Baseline residential water use	<p>Annual baseline estimate from Ohio EPA Water + Wastewater survey: 0.26 AF. Use for new units estimated on per-capita indoor estimates and estimated outdoor irrigation needs.</p> <ul style="list-style-type: none"> Rural lot single family: 0.32 AF Larger lot single family: 0.27 AF Smaller lot single family: 0.19 AF Townhome: 0.18 AF Multifamily: 0.15 AF
Water price	\$2,960 per AF. From Ohio EPA Water + Wastewater cost survey. Regional composite rates cover drinker water and wastewater.
Energy Emissions	
Electricity emissions	Average rate for carbon dioxide equivalent (CO ₂ e) from EIA 2012 Summary Statistics for Ohio: 2.09 lbs/kWh.
Natural gas emissions	Static rate based on carbon content: 11.7 lbs/therm.