**Creation of NAICS Groups**

NAICS codes are common in energy and firmographic data and are used to categorize buildings by business type. However, there are literally thousands of individual NAICS codes, which can make it impractical to use them for higher level analyses. Fortunately the NAICS system, which consists of 6-digit codes, is designed to progress from more general to more specific with each digit. Because of this, the first two digits of a NAICS code can be used to assign broader groupings. Below we provide two groupings of NAICS codes (or “NAICS Groups”) that Recurve has generated, along with the SQL code to perform the mapping from the original 6-digit NAICS codes.

The **NAICS Groups 1** are defined by parsing the first two digits of the individual NAICS codes with no further adjustments (with the exception of some slight modification to the naming conventions provided by the [NAICS Association](https://www.naics.com/history-naics-code/)). For many purposes and data sets these groupings will be preferred. However, for the specific case of using NAICS codes to investigate the energy impacts of COVID-19 among the MCE customer base, Recurve has found this mapping to be suboptimal for a few reasons. First, NAICS designations are not broken down by essential vs. non-essential services. This leads to grocery stores being catalogued as Retail Trade along with clothing, jewelry, and book stores among other “non-essential” businesses. Second, the 2-digit NAICS groupings often result in mixed building types, something that can cloud results. For example, consider NAICS Industry Sector 61: Educational Services. Within this sector there are more school district office buildings (611119 Unif School District Ofc) than actual schools. Therefore, to better classify buildings for the COVID-impacts analysis, Recurve organized buildings into **NAICS Groups 2**, which is detailed below.

**NAICS Groups 1**

Agriculture/Hunting

Mining/Oil/Gas

Utilities

Construction

Manufacturing

Wholesale\_Trade

Retail

Transportation/Warehousing

Construction

Finance/Insurance

Real\_Estate

Scientific/Technical

Management

Waste\_Management

Education

Health\_Care/Social

Entertainment

Restaurants/Food\_Service

Other\_Services

Public\_Administration

**SQL for NAICS Group 1 Mapping:**

select

case

when naics\_2digit = '11' then 'Agriculture/Hunting'

when naics\_2digit = '21' then 'Mining/Oil/Gas'

when naics\_2digit = '22' then 'Utilities'

when naics\_2digit = '23' then 'Construction'

when naics\_2digit between '31' and '33' then 'Manufacturing'

when naics\_2digit = '42' then 'Wholesale\_Trade'

when naics\_2digit between '44' and '45' then 'Retail'

when naics\_2digit between '48' and '49' then 'Transportation/Warehousing'

when naics\_2digit = '51' then 'Construction'

when naics\_2digit = '52' then 'Finance/Insurance'

when naics\_2digit = '53' then 'Real\_Estate'

when naics\_2digit = '54' then 'Scientific/Technical'

when naics\_2digit = '55' then 'Management'

when naics\_2digit = '56' then 'Waste\_Management'

when naics\_2digit = '61' then 'Education'

when naics\_2digit = '62' then 'Health\_Care/Social'

when naics\_2digit = '71' then 'Entertainment'

when naics\_2digit = '72' then 'Restaurants/Food\_Service'

when naics\_2digit = '81' then 'Other\_Services'

when naics\_2digit = '92' then 'Public\_Administration'

else 'Unassigned'

end as naics\_group

from

(

with naics\_2dig as (

select

id,

REGEXP\_EXTRACT\_All(left\_sa\_naics\_cd\_3, r '^[0-9][0-9]') as n\_2dig,

ifnull(left\_sa\_naics\_cd\_3, '0') as naics

from

sfe\_bayren\_targeting\_warehouse.dim\_project\_site\_meter d

)

select

id,

naics,

naics\_2digit

from

naics\_2dig

cross join unnest(n\_2dig) as naics\_2digit

)

**NAICS Groups 2**

Administrative/Civil

Automotive, Banks

Beauty

Churches/Religious

Construction/Contractors

Fitness, Gas\_Stations

Grocery/Convenience

Hotels/Lodging

Medical\_Offices

Offices

Real\_Estate

Restaurants/Bars

Retail

Schools

Unassigned

Warehousing/Postal

**SQL for NAICS Group 2 Mapping:**

select

case

when naics\_ch in ('813312', '813410', '813910', '813930', '813990', '921190') then 'Administrative/Civil'

when naics\_ch in ('423120', '441100', '441110', '441120', '441228', '441310', '441320', '488410', '811100', '811111', '811121', '811198') then 'Automotive'

when naics\_ch in ('522110', '522120', '522130') then 'Banks'

when naics\_ch in ('812113', '812112', '812199', '812111') then 'Beauty'

when naics\_ch in ('813110') then 'Churches/Religious'

when naics\_ch in ('230000', '231531', '236110', '236115', '236118', '236220', '237210', '237310', '238000', '238150', '238160', '238210', '238220', '238320', '238330', '238990') then 'Construction/Contractors'

when naics\_ch in ('713940', '611620') then 'Fitness'

when naics\_ch in ('447100', '447110', '447190') then 'Gas\_Stations'

when naics\_ch in ('445100', '445110', '445120', '445310', '446110') then 'Grocery/Convenience'

when naics\_ch in ('721110', '721191') then 'Hotels/Lodging'

when naics\_ch in ('621210', '621310', '621320', '621340', '621399', '621400', '621491', '621492', '621498', '621111') then 'Medical\_Offices'

when naics\_ch in ('524200', '541110', '541210', '541211', '541213', '541310', '541320', '541330', '541410', '541430', '541511', '541512', '541611', '541618', '541620', '541690', '541850', '561110', '561439', '561499', '561710', '561720', '561730', '561990', '611119') then 'Offices'

when naics\_ch in ('530000', '531000', '531110', '531120', '531122', '531130', '531150', '531210', '531310') then 'Real\_Estate'

when naics\_ch in ('722410', '722511', '722000', '722513', '722515') then 'Restaurants/Bars'

when naics\_ch in ('488110', '447190', '448140', '448210', '446120', '448190', '442110', '446130', '453310', '448100', '448310', '451120', '453320', '453110', '451110', '451211', '452319', '453220', '453920', '453991', '453998', '453910', '531121', '442210', '442299', '443142', '444130', '444190', '444220') then 'Retail'

when naics\_ch in ('611111', '611113', '611691') then 'Schools'

when naics\_ch in ('491110', '493100', '493110', '493190') then 'Warehousing/Postal'

else 'Unassigned'

end as naics\_group