

# Appendix D

## Energy



# Appendix D.1

## Energy Modeling Assumptions and Calculations



| Project Land Uses                                 |                       |                              |           |       |             |             |
|---|-----------------------|------------------------------|-----------|-------|-------------|-------------|
| Land Use Type                                     | CalEEMod LandUse Type | CalEEMod LandUse Subtype     | Amount    | Unit  | Building SF | Lot Acreage |
| Asphalt (Total)                                   | Parking               |                              |           |       |             |             |
| Parking Lots                                      | Parking               |                              | 43,244    | ksf   | 43,244      |             |
| Fire Lanes  | Parking               | Other Asphalt Surface        | 25,777    | ksf   | 25,777      |             |
| Hardscape (non-asphalt) (Total)                   | Parking               | Other Non-Asphalt Surface    | 176,751   | ksf   | 176,751     |             |
| Sidewalks   |                       |                              | 66,204    | ksf   | 66,204.0    |             |
| Canopies  |                       |                              | 20,145    | ksf   | 20,145      |             |
| Tennis Courts (include all existing for demo)     |                       |                              | 46,390    | ksf   | 46,390      |             |
| Basketball Courts (include all existing for demo) |                       |                              | 34,337    | ksf   | 34,337      |             |
| Stadium Seating                                   |                       |                              | 9,675     | ksf   | 9,675       |             |
| Recreational (Total)                              | Recreational          | City Park                    | 340,764   | ksf   | 340,764     |             |
| Baseball Field                                    |                       |                              | 105,264   | ksf   | 105,264     |             |
| Softball Field                                    |                       |                              | 53,615    | ksf   | 53,615      |             |
| Track&Field/Shotput/Discus                        |                       |                              | 181,885   | ksf   | 181,885     |             |
| Softscape (Total)                                 | Recreational          | City Park                    | 660,182   | ksf   | 660,182     |             |
| Landscaping                                       |                       |                              | 660,182   | ksf   | 660,182     |             |
| Buildings   | Recreational          | Health Club                  | 12,152    | ksf   | 12,152      |             |
| NEW BUILDING SU                                   | Industrial            | Warehouse No Rail            | 0.379     | ksf   | 379         |             |
| NEW BUILDING W                                    | Retail                | Convenience Market (24 Hour) | 0.737     | ksf   | 737         |             |
| NEW BUILDING Y                                    | Recreational          | Health Club                  | 3,251     | ksf   | 3,251       |             |
| NEW BUILDING Z                                    | Recreational          | Health Club                  | 1,864     | ksf   | 1,864       |             |
| BUILDING L (demo and replace)                     | Educational           | High School                  | 5,921     | ksf   | 5,921       |             |
| Woodworth + Leased Area                           | Recreational          | City Park                    | 1,001.880 | ksf   | 1,001,880   | 23.00       |
| Buildings Total                                   |                       |                              |           |       |             |             |
| NEW BUILDING SU                                   | Industrial            | Warehouse No Rail            | 0.379     | ksf   | 379         | 0.25        |
| NEW BUILDING W                                    | Retail                | Strip Mall                   | 0.737     | ksf   | 737         | 0.25        |
| NEW BUILDING Y + Z                                | Recreational          | Health Club                  | 5,115     | ksf   | 5,115.00    | 0.88        |
| BUILDING L (demo and replace)                     | Educational           | High School                  | 5,921     | ksf   | 5,921       | 1.00        |
| Parking Lots                                      | Parking               | Parking Lot                  | 43,244    | ksf   | 43,244      | 0.99        |
| Fire Lanes  | Parking               | Other Asphalt Surface        | 25,777    | ksf   | 25,777      | 0.59        |
| Hardscape (non-asphalt) (Total)                   | Parking               | Other Non-Asphalt Surface    | 176,751   | ksf   | 176,751     | 4.06        |
| Recreational (Total)                              | Recreational          | City Park                    | 45,980    | Acres | 2,002,826   | 45.98       |
|   |                       |                              |           |       | Total       | 54.00       |

Leased area and Woodworth are only included in construction modeling to account for demolition and site work associated with these areas, not included in operations

| Construction Phase                           | Start Date | End Date   | No. Work Days <sup>1</sup> | Maximum Number of Daily Workers <sup>2</sup> | Worker One Way Trips/Max Day <sup>3</sup> | Vendor Trips/Max Day (In/Out) | Total Haul or Concrete Truck Trips (In/Out) | Max Daily Haul Trucks/Day | Max Daily Haul Trips/Day (In/Out) | Notes   |
|--|------------|------------|----------------------------|--|---|-------------------------------|---|---------------------------|-----------------------------------|---|
| Demolition                                   | 6/1/2023   | 8/16/2023  | 55                         | 9  | 18  |                               | 17,928                                      | 163                       | 326                               | Schedule based on 2 year duration provided by client<br>Phase days based on CalEEMod default phase percentage of CalEEMod total work days |
| Site Prep                                    | 8/17/2023  | 9/7/2023   | 16                         | 10   | 20  |                               |   |                           |                                   | Phase days based on CalEEMod default phase percentage of CalEEMod total work days   |
| Grading/Excavation                           | 9/8/2023   | 10/31/2023 | 38                         | 12   | 24  |                               | 6,140                                       | 81                        | 162                               | Phase days based on CalEEMod default phase percentage of CalEEMod total work days   |
| Building Modernization + Campus improvements | 11/1/2023  | 4/22/2025  | 385                        | 475  | 950                                       | 372                           |   |                           |                                   | Phase days based on CalEEMod default phase percentage of CalEEMod total work days   |
|  | 11/1/2023  | 12/31/2023 | 43                         |  |   |                               |   |                           |                                   |   |
|  | 11/1/2024  | 12/31/2024 | 262                        |  |   |                               |   |                           |                                   |   |
|  | 1/1/2025   | 4/22/2025  | 80                         |  |   |                               |   |                           |                                   |   |
| Pavings                                      | 4/23/2025  | 5/31/2025  | 28                         | 8  | 16  |                               |   |                           |                                   | Phase days based on CalEEMod default phase percentage of CalEEMod total work days   |
| Architectural Coatings                       | 4/23/2025  | 5/31/2025  | 28                         | 95   | 190                                       |                               |   |                           |                                   | Phase days based on CalEEMod default phase percentage of CalEEMod total work days   |

Notes:

Source: Client Provided Demolition and Excavation Quantities

**Demolition Quantities**

|   |               |
|---|---------------|
| Total Debris Weight (tons)              | 66,553        |
| <b>Total Demolition Debris (CY)</b>     | <b>89,632</b> |
| Haul Truck Capacity (CY)                | 10            |
| Total Haul Trucks Required              | 8,964         |
| <b>Total Haul Truck Trips (In/Out)</b>  | <b>17,928</b> |
| Total Haul Truck Trips (In/Out) per day | 326           |

**Excavation Quantities**

| Parameters                              | Amount       |                 |
|---|--------------|-----------------|
| Excavation Volume (Export) (CY)         | 30,700       | From Data Needs |
| Haul Truck Capacity (CY)                | 10           | Assumption      |
| Total Haul Trucks Required              | 3,070        |                 |
| <b>Total Haul Truck Trips (In/Out)</b>  | <b>6,140</b> |                 |
| Total Haul Truck Trips (In/Out) per day | 162          |                 |

**Asphalt Paving Quantities**

| Parameters             | Amount |                 |
|------------------------|--------|-----------------|
| Area of Paving (acres) | 3.40   | From Data Needs |

Morningside HS  
 Air Quality and Greenhouse Gas Assessment  
 Operational Assumptions

Project Land Uses

| Land Use Type                                     | CalEEMod     |                              | Amount  | Unit  | Building SF | Lot Acreage | Notes   |
|---|--------------|------------------------------|---------|-------|-------------|-------------|---|
|   | LandUse Type | CalEEMod LandUse Subtype     |         |       |             |             |   |
| Asphalt (Total)                                   | Parking      |                              |         |       |             |             |   |
| Parking Lots                                      | Parking      | Parking Lot                  | 43.244  | ksf   | 43,244      |             |   |
| Fire Lanes  | Parking      | Other Asphalt Surface        | 25.777  | ksf   | 25,777      |             |   |
| Hardscape (non-asphalt) (Total)                   | Parking      | Other Non-Asphalt Surface    | 176.751 | ksf   | 176,751     |             |   |
| Sidewalks   |              |                              | 66.204  | ksf   | 66,204.0    |             |   |
| Canopies  |              |                              | 20.145  | ksf   | 20,145      |             |   |
| Tennis Courts (include all existing for demo)     |              |                              | 46.390  | ksf   | 46,390      |             |   |
| Basketball Courts (include all existing for demo) |              |                              | 34.337  | ksf   | 34,337      |             |   |
| Stadium Seating                                   |              |                              | 9.675   | ksf   | 9,675       |             |   |
| Recreational (Total)                              | Recreational | City Park                    | 340.764 | ksf   | 340,764     |             |   |
| Baseball Field                                    |              |                              | 105.264 | ksf   | 105,264     |             |   |
| Softball Field                                    |              |                              | 53.615  | ksf   | 53,615      |             |   |
| Track&Field/Shotput/Discus                        |              |                              | 181.885 | ksf   | 181,885     |             |   |
| Softscape (Total)                                 | Recreational | City Park                    | 660.182 | ksf   | 660,182     |             |   |
| Landscaping                                       |              |                              | 660.182 | ksf   | 660,182     |             |   |
| Buildings   | Recreational | Health Club                  | 12.152  | ksf   | 12,152      |             |   |
| NEW BUILDING SU                                   | Industrial   | Warehouse No Rail            | 0.379   | ksf   | 379         |             |   |
| NEW BUILDING W                                    | Retail       | Convenience Market (24 Hour) | 0.737   | ksf   | 737         |             |   |
| NEW BUILDING Y                                    | Recreational | Health Club                  | 3.251   | ksf   | 3,251       |             |   |
| NEW BUILDING Z                                    | Recreational | Health Club                  | 1.864   | ksf   | 1,864       |             |   |
| BUILDING L (demo and replace)                     | Educational  | High School                  | 5.921   | ksf   | 5,921       |             |   |
| Buildings Total                                   |              |                              |         |       |             |             |   |
| NEW BUILDING SU                                   | Industrial   | Warehouse No Rail            | 0.379   | ksf   | 379         | 0.25        |   |
| NEW BUILDING W                                    | Retail       | Strip Mall                   | 0.737   | ksf   | 737         | 0.25        |   |
| NEW BUILDING Y + Z                                | Recreational | Health Club                  | 5.115   | ksf   | 5,115.00    | 0.88        |   |
| BUILDING L (demo and replace)                     | Educational  | High School                  | 5.921   | ksf   | 5,921       | 1.00        |   |
| Parking Lots                                      | Parking      | Parking Lot                  | 43.244  | ksf   | 43,244      | 0.99        |   |
| Fire Lanes  | Parking      | Other Asphalt Surface        | 25.777  | ksf   | 25,777      | 0.59        | Added Parking Lot Lighting to account for general lighting. |
| Hardscape (non-asphalt) (Total)                   | Parking      | Other Non-Asphalt Surface    | 176.751 | ksf   | 176,751     | 4.06        | Added Parking Lot Lighting to account for general lighting. |
| Recreational (Total)                              | Recreational | City Park                    | 22.980  | Acres | 1,000,946   | 22.98       | Added Parking Lot Lighting to account for general lighting. |
|   |              |                              |         |       | Total       | 31.00       |   |

Architectural Coating Area Calculations

| CalEEMod assumes the total surface for architectural coating equals: |  |
|--|--|
| Residential Coating Area   | 2.7 times the floor square footage<br>75% interior<br>25% exterior |
| Nonresidential Coating Area  | 2 times the square footage<br>75% interior<br>25% exterior         |
| Parking Lot Coating Area   | 6% of the square footage<br>0% exterior for surface lot            |

Source: SCAQMD, CEQA Air Quality Handbook, (1993) A9-124.

South Plaza

| Nonresidential                  |           |               |                |               |
|---------------------------------|-----------|---------------|----------------|---------------|
| Land Use                        | Area (sf) | Interior (sf) | Exterior (sf)  |               |
| NEW BUILDING SU                 | 379       | 569           | 190            |               |
| NEW BUILDING W                  | 737       | 1,106         | 369            |               |
| NEW BUILDING Y + Z              | 5,115     | 7,673         | 2,558          |               |
| BUILDING L (demo and replace)   | 5,921     | 8,882         | 2,961          |               |
| Hardscape (non-asphalt) (Total) | 176,751   | 265,127       | 88,376         |               |
| <b>Total Nonresidential</b>     |           |               | <b>283,355</b> | <b>94,452</b> |

| Parking      |           |               |               |  |
|--------------|-----------|---------------|---------------|--|
| Land Use     | Area (sf) | Interior (sf) | Exterior (sf) |  |
| Parking Lots | 43,244    | 2,595         |               |  |
| Fire Lanes   | 25,777    | 1,547         |               |  |
|              |           |               | <b>4,141</b>  |  |

**Morningside HS  
Construction Energy Analysis**

**Annual Fuel Summary**

|  |   |
|--|---|
| <b>Heavy-Duty Construction Equipment</b> |   |
| 88,780                                   | Total Project Consumption                                 |
| 44,390                                   | Annual Consumption  |
| <b>Haul Trucks</b>                       |   |
| 113,872                                  | Total Project Consumption                                 |
| 56,936                                   | Annual Consumption  |
| <b>Vendor Trucks</b>                     |   |
| 137,088                                  | Total Project Consumption                                 |
| 68,544                                   | Annual Consumption  |
| <b>Workers</b>                           |   |
| 206,734                                  | Total Project Consumption                                 |
| 103,367                                  | Annual Consumption  |
| 250,960                                  | Project Consumption of diesel for Haul Trucks and Vendors |
| 125,480                                  | Annual Consumption  |
| 339,740                                  | Total Gallons Diesel                                      |
| 206,734                                  | Total Gallons Gasoline                                    |

2.00 Estimated Project Construction Duration (years)

169,870 Annual Average Gallons Diesel  
103,367 Annual Average Gallons Gasoline

| Los Angeles County          |           |               | Percent of Annual Project Compared to Los Angeles County |
|-----------------------------|-----------|---------------|--|
| Source                      | Fuel Type | Gallons       |  |
| Workers                     | Gasoline  | 3,061,000,000 | 0.0034%  |
| Off-Road/Vendor/Haul Trucks | Diesel    | 450,700,000   | 0.0377%  |

Notes:

1 Gasoline and diesel amounts from CEC, 2021. Available: <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting>

**Annual Electricity Summary**

|  |                        |             |
|--|------------------------|-------------|
| Temporary Construction Trailer - Electricity | 25,980 kWh/year        | 26.0        |
| Water Conveyance for Dust Control            | 3,770 kWh/year         | 3.8         |
| <b>Total</b>                                 | <b>29,750 kWh/year</b> | <b>29.7</b> |

82,048,000 | Total SCE, 2021  
0.00004% Project percentage of SCE

Notes:

1 Total SCE Electricity Sales Amount. Available: <https://www.edison.com/content/dam/eix/documents/investors/sec-filings-financials/2021-eix-sce-annual-report.pdf>



Morningside HS  
 Construction Energy  
 Construction Water Energy Estimates

| Park Zone    | Source           | Acreage/Day | Number of Days | Total Construction Water Use (Mgal) | Electricity Demand from Water Conveyance (MWh) | Annual Electricity Demand from Water Conveyance (MWh) |
|--------------|------------------|-------------|----------------|-------------------------------------|--|---|
| Project      | Demolition       | 1           | 55             | 0.165                               | 2.1  | 1.1   |
| Project      | Site Preparation | 1.5         | 16             | 0.072                               | 0.9  | 0.5   |
| Project      | Grading          | 3           | 38             | 0.342                               | 4.5  | 2.2   |
| <b>Total</b> |                  |             |                | <b>0.579</b>                        | <b>7.5</b>                                     | <b>3.8</b>  |

| CalEEMod Water Electricity Factors | Electricity Intensity Factor To Supply (kWh/Mgal) | Electricity Intensity Factor To Treat (kWh/Mgal) | Electricity Intensity Factor To Distribute (kWh/Mgal) | Electricity Intensity Factor For Wastewater Treatment (kWh/Mgal) |
|------------------------------------|---|--|---|--|
|                                    | 9727  | 111  | 1272  | 1911   |

Sources and Assumptions:

CalEEMod Appendix A, Pg. 8, based on given piece of equipment can pass over in an 8-hour workday

-Electricity Intensity Factors - California Emissions Estimator Model (CalEEMod).

-Estimated construction water use assumed to be generally equivalent to landscape irrigation, based on a factor of 20.94 gallons per year per square foot of landscaped area within the Los Angeles area (Mediterranean climate), which assumes high water demand landscaping materials and an irrigation system efficiency of 85%.

Factor is therefore  $(20.94 \text{ GAL/SF/year}) \times (43,560 \text{ SF/acre}) / (365 \text{ days/year}) / (0.85) = 2,940 \text{ gallons/acre/day}$ , rounded up to 3,000 gallons/acre/day.

(U.S. Department of Energy, Energy Efficiency & Renewable Energy, Federal Energy Management Program. "Guidelines for Estimating Unmetered Landscaping Water Use." July 2010. Page 12, Table 4 - Annual Irrigation Factor – Landscaped Areas with High Water Requirements).

**Morningside HS  
Construction Energy Analysis**

**Temporary Construction Trailer - Electricity**

| <b>Land Use</b>   | <b>Square Feet</b> | <b>Energy Use per year (kWh)</b> | <b>Total Energy Use (kWh)</b> | <b>GHG Emissions/ year (MTCO2e)</b> | <b>Total GHG Emissions for Construction Duration</b> | <b>Energy Use per SF</b> |
|---|--------------------|----------------------------------|-------------------------------|-------------------------------------|--|--------------------------|
| General Office  | 2,000              | 25,980                           | 51,960.00                     | 12.0                                | 48.0   | 13.0                     |
| Note: CalEEMod 2016.3.2 used to estimate energy use for temporary construction office |                    |                                  |                               |                                     |  |                          |

Morningside HS  
Construction Energy Analysis

Off-Road Equipment

|  |                   |
|--|-------------------|
| <b>Equipment ≤ 100 hp</b>                          |                   |
| pounds diesel fuel/hp-hr (lb/hp-hr): <sup>-1</sup> | 0.408 lb/hp-hr    |
| diesel density (lb/gal): <sup>-1</sup>             | 7.11 lb/gal       |
| diesel gallons/hp-hr:                              | 0.0574 gal/hp-hr  |
|  | 839,524 hp-hr     |
| Total diesel gallons:                              | 48,183 gal        |
| <b>Equipment &gt; 100 hp</b>                       |                   |
| pounds diesel fuel/hp-hr (lb/hp-hr): <sup>-1</sup> | 0.367 lb/hp-hr    |
| diesel density (lb/gal): <sup>-1</sup>             | 7.11 lb/gal       |
| diesel gallons/hp-hr:                              | 0.0516 gal/hp-hr  |
|  | 786,374 hp-hr     |
| Total diesel gallons:                              | 40,597 gal        |
| <b>Total diesel gallons (off-road equipment):</b>  | <b>88,780 gal</b> |

[1. OFFROAD2017 Emission Factor Documentation](#)

| Scenario | Construction Phase    | Equipment                 | Number | Hours/Day | HP  | Load | Days | Total hp-hr               | Electric Equipment | Electric Conversion (kW/HP) | Electric Demand (kWh) |
|----------|-----------------------|---------------------------|--------|-----------|-----|------|------|---------------------------|--------------------|-----------------------------|-----------------------|
| Project  | Demolition            | Concrete/Industrial Saws  | 1      | 8         | 81  | 0.73 | 55   | 26,017                    | -                  | -                           | -                     |
| Project  | Demolition            | Excavators                | 3      | 8         | 158 | 0.38 | 55   | 79,253                    | -                  | -                           | -                     |
| Project  | Demolition            | Off-Highway Trucks        | 1      | 8         | 402 | 0.38 | 55   | 67,214                    | -                  | -                           | -                     |
| Project  | Demolition            | Rubber Tired Dozers       | 2      | 8         | 247 | 0.4  | 55   | 86,944                    | -                  | -                           | -                     |
| Project  | Site Preparation      | Off-Highway Trucks        | 1      | 8         | 402 | 0.38 | 16   | 19,553                    | -                  | -                           | -                     |
| Project  | Site Preparation      | Rubber Tired Dozers       | 3      | 8         | 247 | 0.4  | 16   | 37,939                    | -                  | -                           | -                     |
| Project  | Site Preparation      | Tractors/Loaders/Backhoes | 4      | 8         | 97  | 0.37 | 16   | 18,376                    | -                  | -                           | -                     |
| Project  | Grading               | Excavators                | 2      | 8         | 158 | 0.38 | 38   | 36,504                    | -                  | -                           | -                     |
| Project  | Grading               | Graders                   | 1      | 8         | 187 | 0.41 | 38   | 23,308                    | -                  | -                           | -                     |
| Project  | Grading               | Off-Highway Trucks        | 1      | 8         | 402 | 0.38 | 38   | 46,439                    | -                  | -                           | -                     |
| Project  | Grading               | Rubber Tired Dozers       | 1      | 8         | 247 | 0.4  | 38   | 30,035                    | -                  | -                           | -                     |
| Project  | Grading               | Scrapers                  | 2      | 8         | 367 | 0.48 | 38   | 107,105                   | -                  | -                           | -                     |
| Project  | Grading               | Tractors/Loaders/Backhoes | 2      | 8         | 97  | 0.37 | 38   | 21,821                    | -                  | -                           | -                     |
| Project  | Building Construction | Cranes                    | 1      | 8         | 231 | 0.29 | 385  | 206,329                   | -                  | -                           | -                     |
| Project  | Building Construction | Forklifts                 | 3      | 8         | 89  | 0.2  | 385  | 164,472                   | -                  | -                           | -                     |
| Project  | Building Construction | Generator Sets            | 1      | 8         | 84  | 0.74 | 385  | 191,453                   | -                  | -                           | -                     |
| Project  | Building Construction | Tractors/Loaders/Backhoes | 3      | 8         | 97  | 0.37 | 385  | 331,624                   | -                  | -                           | -                     |
| Project  | Building Construction | Welders                   | 1      | 8         | 46  | 0.45 | 385  | 63,756                    | -                  | -                           | -                     |
| Project  | Paving                | Pavers                    | 2      | 8         | 130 | 0.42 | 28   | 24,461                    | -                  | -                           | -                     |
| Project  | Paving                | Paving Equipment          | 2      | 8         | 132 | 0.36 | 28   | 21,289                    | -                  | -                           | -                     |
| Project  | Paving                | Rollers                   | 2      | 8         | 80  | 0.38 | 28   | 13,619                    | -                  | -                           | -                     |
| Project  | Architectural Coating | Air Compressors           | 1      | 8         | 78  | 0.48 | 28   | 8,387                     | -                  | -                           | -                     |
|          |                       |                           |        |           |     |      |      | -                         | -                  | -                           | -                     |
|          |                       |                           |        |           |     |      |      | <b>Total - &gt;100 hp</b> | <b>786,374</b>     | <b>Total Electricity</b>    | <b>-</b>              |
|          |                       |                           |        |           |     |      |      | <b>Total - &lt;100 hp</b> | <b>839,524</b>     | <b>Average per Year</b>     | <b>-</b>              |

**Morningside HS**  
**Total On-Road Fuel Consumption**

| gal/mile            |            |  |
|---------------------|------------|--|
| 2021Hauling Hauling | 0.17163556 |  |
| 2021Vendor Vendor   | 0.14228491 |  |
| 2021Worker Worker   | 0.04006185 |  |
| 2022Hauling Hauling | 0.16994622 |  |
| 2022Vendor Vendor   | 0.14134669 |  |
| 2022Worker Worker   | 0.03932686 |  |
| 2023Hauling Hauling | 0.16765003 |  |
| 2023Vendor Vendor   | 0.13998726 |  |
| 2023Worker Worker   | 0.03854242 |  |
| 2024Hauling Hauling | 0.1656907  |  |
| 2024Vendor Vendor   | 0.13888166 |  |
| 2024Worker Worker   | 0.03771161 |  |
| 2025Hauling Hauling | 0.16346378 |  |
| 2025Vendor Vendor   | 0.13752209 |  |
| 2025Worker Worker   | 0.0368976  |  |
| 2026Hauling Hauling | 0.1612349  |  |
| 2026Vendor Vendor   | 0.13616514 |  |
| 2026Worker Worker   | 0.03612173 |  |

**Morningside HS**  
**Total On-Road Fuel Consumption**

| Source  | Fuel Type | Total Fuel Use (gal) |
|---------|-----------|----------------------|
| Hauling | Diesel    | 113,872              |
| Vendor  | Diesel    | 137,088              |
| Worker  | Gasoline  | 206,734              |

| Fuel Type | Total Fuel Use | Annual Fuel Use |
|-----------|----------------|-----------------|
| Diesel    | 250,960        | 120,527         |
| Gasoline  | 206,734        | 99,287          |

| Duration of Construction |           |
|--------------------------|-----------|
| Start                    | 6/1/2023  |
| End                      | 6/30/2025 |
| 2.1                      | years     |

| Construction Phase                    | Daily One-Way Trips | Haul Days per Phase (days) | Work Hours per Day (hours/day) | One-Way Trip Distance per Day (miles) | Idling per Day (minutes) | Regional Emissions (gallons) |          |         |                  |  |
|---------------------------------------|---------------------|----------------------------|--------------------------------|---------------------------------------|--------------------------|------------------------------|----------|---------|------------------|--|
|                                       |                     |                            |                                |                                       |                          | gal/mile                     | gal/min  | gal/day | Total Gallons/yr |  |
| <b>Demolition</b>                     |                     |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 2023                |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 17928               |                            |                                |                                       |                          |                              |          |         |                  |  |
| Hauling                               | 326                 | 55                         | 8                              | 28.2                                  | 15                       | 0.17                         | 0.00E+00 | 1,541   | 84,768           |  |
| Vendor                                | 0                   | 55                         | 8                              | 6.9                                   | 15                       | 0.14                         | 0.00E+00 | 0       | 0                |  |
| Worker                                | 18                  | 55                         | 8                              | 14.7                                  | 0                        | 0.04                         | 0.00E+00 | 10      | 561              |  |
| <b>Site Prep</b>                      |                     |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 2023                |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 0                   |                            |                                |                                       |                          |                              |          |         |                  |  |
| Hauling                               | 0                   | 16                         | 8                              | 28.2                                  | 15                       | 0.17                         | 0.00E+00 | 0       | 0                |  |
| Vendor                                | 0                   | 16                         | 8                              | 6.9                                   | 15                       | 0.14                         | 0.00E+00 | 0       | 0                |  |
| Worker                                | 20                  | 16                         | 8                              | 14.7                                  | 0                        | 0.04                         | 0.00E+00 | 11      | 181              |  |
| <b>Grading/Excavation</b>             |                     |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 2023                |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 6140                |                            |                                |                                       |                          |                              |          |         |                  |  |
| Hauling                               | 162                 | 38                         | 8                              | 28.2                                  | 15                       | 0.17                         | 0.00E+00 | 766     | 29,104           |  |
| Vendor                                | 0                   | 38                         | 8                              | 6.9                                   | 15                       | 0.14                         | 0.00E+00 | 0       | 0                |  |
| Worker                                | 24                  | 38                         | 8                              | 14.7                                  | 0                        | 0.04                         | 0.00E+00 | 14      | 517              |  |
| <b>Building Modernization + Campi</b> |                     |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 2023                |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 0                   |                            |                                |                                       |                          |                              |          |         |                  |  |
| Hauling                               | 0                   | 43                         | 8                              | 20                                    | 15                       | 0.17                         | 0.00E+00 | 0       | 0                |  |
| Vendor                                | 372                 | 43                         | 8                              | 6.9                                   | 15                       | 0.14                         | 0.00E+00 | 359     | 15,451           |  |
| Worker                                | 950                 | 43                         | 8                              | 14.7                                  | 0                        | 0.04                         | 0.00E+00 | 538     | 23,145           |  |
| <b>Building Modernization + Campi</b> |                     |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 2024                |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 0                   |                            |                                |                                       |                          |                              |          |         |                  |  |
| Hauling                               | 0                   | 262                        | 8                              | 20                                    | 15                       | 0.17                         | 0.00E+00 | 0       | 0                |  |
| Vendor                                | 372                 | 262                        | 8                              | 6.9                                   | 15                       | 0.14                         | 0.00E+00 | 356     | 93,398           |  |
| Worker                                | 950                 | 262                        | 8                              | 14.7                                  | 0                        | 0.04                         | 0.00E+00 | 527     | 137,980          |  |
| <b>Building Modernization + Campi</b> |                     |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 2025                |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 0                   |                            |                                |                                       |                          |                              |          |         |                  |  |
| Hauling                               | 0                   | 80                         | 8                              | 20                                    | 15                       | 0.16                         | 0.00E+00 | 0       | 0                |  |
| Vendor                                | 372                 | 80                         | 8                              | 6.9                                   | 15                       | 0.14                         | 0.00E+00 | 353     | 28,239           |  |
| Worker                                | 950                 | 80                         | 8                              | 14.7                                  | 0                        | 0.04                         | 0.00E+00 | 515     | 41,222           |  |
| <b>Pavings</b>                        |                     |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 2025                |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 0                   |                            |                                |                                       |                          |                              |          |         |                  |  |
| Hauling                               | 0                   | 28                         | 8                              | 20                                    | 15                       | 0.16                         | 0.00E+00 | 0       | 0                |  |
| Vendor                                | 0                   | 28                         | 8                              | 6.9                                   | 15                       | 0.14                         | 0.00E+00 | 0       | 0                |  |
| Worker                                | 16                  | 28                         | 8                              | 14.7                                  | 0                        | 0.04                         | 0.00E+00 | 9       | 243              |  |
| <b>Architectural Coatings</b>         |                     |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 2025                |                            |                                |                                       |                          |                              |          |         |                  |  |
| Total Haul Trips                      | 0                   |                            |                                |                                       |                          |                              |          |         |                  |  |
| Hauling                               | 0                   | 28                         | 8                              | 20                                    | 15                       | 0.16                         | 0.00E+00 | 0       | 0                |  |
| Vendor                                | 0                   | 28                         | 8                              | 6.9                                   | 15                       | 0.14                         | 0.00E+00 | 0       | 0                |  |
| Worker                                | 190                 | 28                         | 8                              | 14.7                                  | 0                        | 0.04                         | 0.00E+00 | 103     | 2,886            |  |

**Morningside HS  
Operational Energy Demand**

| Electricity                               | kWh/yr           | MWh/yr        |
|---|------------------|---------------|
| <b>Project</b>                            |                  |               |
| City Park                                 | 350,331          | 350           |
| Health Club                               | 42,301           | 42            |
| High School                               | 34,816           | 35            |
| Other Asphalt Surfaces                    | 9,022            | 9             |
| Other Non-Asphalt Surfaces                | 61,863           | 62            |
| Parking Lot                               | 15,135           | 15            |
| Strip Mall                                | 8,203            | 8             |
| Unrefrigerated Warehouse-No Rail          | 1,554            | 2             |
| <b>EV Charging (see worksheet)</b>        | 40,150           | 40            |
| <b>Pole Lighting (see worksheet)</b>      | 81,913           | 82            |
| <b>Project Total Building Energy</b>      | <b>523,224</b>   | <b>523</b>    |
| <b>Project Total</b>                      | <b>645,287</b>   | <b>645.29</b> |
| <b>Total (including water, see below)</b> | <b>1,019,601</b> | <b>1,020</b>  |

Source: California Air Resources Board, CalEEMod, Version 2020.4.0

Source: Southern California Edison 2021 Annual Report. <https://www.edison.com/content/dam/eix/documents/investors/sec-filings-financials/2021-eix-sce-annual-report.pdf>

| Electricity                   | MWh/yr (Supplied) |
|-------------------------------|-------------------|
| Total SCE, 2021               | 82,048,000        |
| Project Annual                | 1,020             |
| <b>Percent Project of SCE</b> | <b>0.0012%</b>    |

| Water                            | Mgal/yr       | MWh/yr        |
|----------------------------------|---------------|---------------|
| <b>Project</b>                   |               |               |
| City Park                        | 27.38         | 356.52        |
| Health Club                      | 0.49          | 6.36          |
| High School                      | 0.70          | 9.14          |
| Other Asphalt Surfaces           | 0.00          | -             |
| Other Non-Asphalt Surfaces       | 0.00          | -             |
| Parking Lot                      | 0.00          | -             |
| Strip Mall                       | 0.09          | 1.15          |
| Unrefrigerated Warehouse-No Rail | 0.09          | 1.14          |
| <b>Project Total</b>             | <b>28.747</b> | <b>374.31</b> |

| Electricity Intensity Factors             | kWh/Mgal |
|---|----------|
| Electricity Factor - Supply               | 9,727    |
| Electricity Factor - Treat                | 111      |
| Electricity Factor - Distribute           | 1,272    |
| Electricity Factor - Wastewater Treatment | 1,911    |

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

Water Demand based on Project Water supply Assessment

Sewage Facilities Charge, Sewage Generation Factor for Residential and Commercial Categories, 2012.

| Natural Gas                      | kBtu/yr        | cubic foot (cf) |
|----------------------------------|----------------|-----------------|
| <b>Project</b>                   |                |                 |
| City Park                        | 0              | -               |
| Health Club                      | 106,187        | 102,695         |
| High School                      | 69,513         | 67,227          |
| Other Asphalt Surfaces           | 0              | -               |
| Other Non-Asphalt Surfaces       | 0              | -               |
| Parking Lot                      | 0              | -               |
| Strip Mall                       | 1,467          | 1,418           |
| Unrefrigerated Warehouse-No Rail | 1,474          | 1,426           |
| <b>Mobile Sources</b>            | <b>325</b>     | <b>314</b>      |
| <b>Total</b>                     | <b>178,965</b> | <b>173,081</b>  |

Source: California Air Resources Board, CalEEMod, Version 2020.4.0

Conversion factor of 1,034 Btu per cubic foot based on United States Energy Information Administration data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, Nov 2022.

[https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPGO\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPGO_VGTH_btucf_a.htm)

| Natural Gas                        | million cubic foot (cf) |
|------------------------------------|-------------------------|
| SoCalGas 2025                      | 883,894                 |
| Project Annual                     | 0.173                   |
| <b>Percent Project of SoCalGas</b> | <b>0.00002%</b>         |

Source: California Gas and Electric Utilities, 2020 California Gas Report, p. 145,2020.

**Morningside HS**  
**Project Energy Analysis**  
**Fuel Usage from VMT**

Annual VMT: 454,772 miles/year

| Fuel Type: <sup>1</sup>          | Gasoline | Diesel | Electricity | Natural Gas | Plug-in Hybrid |
|----------------------------------|----------|--------|-------------|-------------|----------------|
| Percent:                         | 88.4%    | 5.5%   | 3.8%        | 0.3%        | 2.1%           |
| Miles per Gallon Fuel:           | 25.2     | 8.7    | -           | 4.4         | 59.0           |
| Annual VMT by Fuel Type (miles): | 401,905  | 24,903 | 17,144      | 1,431       | 9,388          |
| Annual Fuel Usage (gallons):     | 15,940   | 2,879  | -           | 325         | 159            |

|  | Los Angeles County Fuel Consumption <sup>3</sup> |             |
|--|--|-------------|
|  | Gasoline   | Diesel      |
| Los Angeles County:                        | 3,061,000,000                                    | 450,700,000 |
| Project Total                              | 16,099   | 2,879       |
| Percent Net Project of Los Angeles County: | 0.0005%  | 0.0006%     |

Notes:

1. California Air Resources Board, EMFAC2021 (SC Air Basin; Annual; 2025, Aggregate Fleet).
2. Assumes electric vehicles would replace traditional gasoline-fueled vehicles.
3. California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2021. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed November 2022. Diesel is adjusted to account for retail (49.7%) and non-retail (50.3%) diesel sales.
4. Trips provided by Project Transportation Impact Study

**937 Pine**  
**Operational Energy Analysis**

**Estimated Electricity demand from Electric Vehicle Supply Equipment (EVSE)**

| <b>Land Use Type</b> | <b>Number of EVSE Charging Spaces</b> | <b>Average Charge (kWh/day)<sup>a</sup></b> | <b>Days/Year</b> | <b>Electricity Demand (kWh/yr)</b> | <b>Electricity Demand (MWh/yr)</b> |
|----------------------|---------------------------------------|---|------------------|------------------------------------|------------------------------------|
| <b>Total</b>         | <b>25</b>                             | <b>4.4</b>                                  | <b>365</b>       | <b>40,150</b>                      | <b>40.15</b>                       |

Notes:

- a. Estimated based on reference sources listed below.
- b. Project would install 25 EV Charging Spaces
- c. Project would install pre-wiring for EV charging spaces for 20 percent of its parking capacity for future use (so 10% in addition to the immediate use).

Sources:

US Department of Energy. Alternative Fuels Data Center, 2016. Hybrid and Plug-In Electric Vehicle Emissions Data Sources and Assumptions.  
 Available at: [https://www.afdc.energy.gov/vehicles/electric\\_emissions\\_sources.html](https://www.afdc.energy.gov/vehicles/electric_emissions_sources.html).

US Department of Energy. Smith, Margaret, 2016. Level 1 Electric Vehicle Charging Stations at the Workplace.  
 Available at: [https://www.afdc.energy.gov/uploads/publication/WPCC\\_L1ChargingAtTheWorkplace\\_0716.pdf](https://www.afdc.energy.gov/uploads/publication/WPCC_L1ChargingAtTheWorkplace_0716.pdf).

UCLA Luskin Center for Innovation. Williams, Brett and JR deShazo, 2013. Pricing Workplace Charging: Financial Viability and Fueling Costs.  
 Available at: <http://luskin.ucla.edu/sites/default/files/Luskin-WPC-TRB-13-11-15d.pdf>.

**Morningside HS**  
**Pole Lighting and LED Screens**

**Pole Lighting**  
**Based on Illuminance Calculations From Lighting Analysis**

**Circuit Summary**

| Circuit | Description     | Load (kW) | Fixture Qty |
|---------|-----------------|-----------|-------------|
| A       | Football        | 61.8      | 48          |
| B       | Football Egress | 1.6       | 4           |
|         |                 | 63.400    |             |

**Assumptions**

|  |                |
|--|----------------|
| Weekdays+Sundays/Year                    | 313            |
| Saturdays (when facilities will be used) | 10             |
| Lighting # hours per day                 | 4              |
| hours operating per year                 | 1292           |
| Energy usage per year                    | 81913 kwh/year |