Revised Appendix C.1

Construction Assumptions

LACMA'S Building for the Permanent Collection

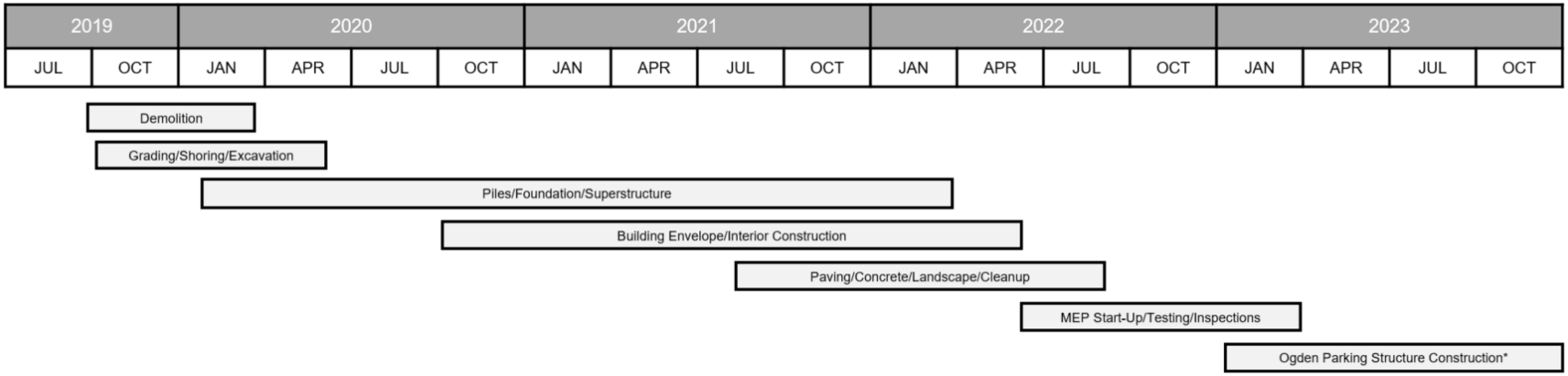
Subsequent to the publication of the Draft Environmental Impact Report (Draft EIR), several design changes were made to the Museum Building. The Project includes an approximately 347,500 gross square foot Museum Building, which is a reduction of 40,000 square feet as compared to the Museum Building analyzed in the Draft EIR. The Museum Building would continue to be located on LACMA East and the property on the southeast corner of Wilshire Boulevard and Spaulding Avenue (Spaulding Lot), with a portion spanning Wilshire Boulevard. The Museum Building would replace four buildings within LACMA East collectively comprising approximately 392,871 gross square feet, including the Ahmanson Building, the Hammer Building, the Art of Americas Building, and the Bing Center (which contains the LACMA Café, the Dorothy Brown Auditorium, which provides 116 seats, and the Bing Theater, which provides 600 seats). Overall, the Project would result in a decrease in the square footage of museum operations by approximately 45,371 square feet and a reduction in the maximum theater size from over 600 seats to 300 seats. The Museum Building is still proposed to consist of seven semi-transparent Pavilions that would support an elevated, continuous, transparent main gallery level extending over Wilshire Boulevard to the Spaulding Lot in the same general location as presented in the Draft EIR; although the shape and location of each Pavilion within the Museum Building has changed slightly. Pavilion for Japanese Art within LACMA East is not a part of the Project Site and would remain. The Project design would also enhance the outdoor experience by including new outdoor landscaped plazas, public programming and educational spaces, sculpture gardens, and native and drought tolerant vegetation that would be integrated with the Museum Building and existing uses within Hancock Park.

In addition, the Project continues to include a proposed new parking facility providing approximately 260 parking spaces to be located southwest of the intersection of Ogden Drive & Wilshire Boulevard on three contiguous parcels owned by Museum Associates (the "Ogden Lot"). All parking spaces currently on the Spaulding Lot would be relocated to this new parking facility (the "Ogden Parking Structure"). The Museum Building and the Ogden Parking Structure together comprise the Project.

While the Project is expected to begin construction during the third or fourth quarter of 2019, a year after what was originally analyzed, the Project would continue to be completed in 2023.

Anticipated Construction Schedule

Recognizing that daily construction activities will impact the way citizens and visitors of the community experience their environment, a new project schedule has been developed that minimizes the exposure of the community to construction activities. Previously, a project schedule of 68 months was proposed. By maximizing the density of site activities and electing to concentrate more resources, 17 months were eliminated from the schedule for a projected project schedule of 51 months. This includes a 40 month schedule for the new building, and a 12 month schedule for the Ogden Parking Structure with one month overlap.



NEW BUILDING		
Activity	**Projected Start Date**	**Projected End Date**
Demolition	27-Sep-19	16-Mar-20
Grading/Shoring/Excavation	04-Oct-19	18-May-20
Piles/Foundation/Superstructure	17-Jan-20	30-Mar-22
Building Envelope/Interiors	06-Oct-20	09-Jun-22
Paving/Concrete/Landscape/Cleanup	05-Aug-21	25-Aug-22
MEP Start-Up/Testing	12-May-22	29-Mar-23

OGDEN PARKING STRUCTURE		
Activity	**Projected Start Date**	**Projected End Date**
Demolition/Excavation/ Shoring	Jan-23	Feb-23
Structure	Mar-23	Aug-23
Cladding/Finishes	Sep-23	Dec-23

Anticipated Construction Equipment Summary

Activity	Craftsmen	Loads Out/ Day	Deliveries/ Day	Air Compressor	Backhoe	Concrete Pump	Dewatering System	Dozer	Drill Rig	Excavator	Forklift	Loader	Man Lift	Mobile Crane	Paver	Tower Crane	Welder
NEW BUILDING																	
Demolition	70	50			10							12		2			
Shoring/ Excavation	60	90	15			1	1	2	1	2		1		1			
Structure	700	95		6	3	3				1	5		4	1		6	6
Finishes	385	12	40	6		1					5		3	1		6	3
Site Work	Included	Included			1							1			1		
Testing	25		10														
OGDEN PARKING STRUCTURE																	
Demolition	15	5			2							1					
Shoring/ Excavation	25	100	5		1			1	1	1	1			1			
Structure	45	3	40		2	1					2					1	
Cladding/ Finishes	50	3	10								2					1	

Construction Activities – New Building

- **Demolition** (27-Sep-19 – 16-Mar-20)
  - 0.4 acres of asphalt parking and 392,871 SF of building space
  - Maximum of 50 loads out per day
  - 70 workers
  - Equipment on worst-case day
    - 12 – Loaders (8 hrs per day)
    - 10 – Backhoe/Breakers (8 hrs per day)
    - 2 – Mobile Cranes (8 hrs per day)

- **Grading/Shoring/Excavation** (04-Oct-19 – 18-May-20)
  - 127,600 CY export and 37,400 CY import
  - Maximum of 90 loads out per day for haul trucks and 15 deliveries per day
  - 60 workers
  - Equipment on worst-case day
    - 2 – Dozers (8 hrs per day)
    - 2 – Excavators (8 hrs per day)
    - 1 – Bore/Drill Rig (8 hrs per day)
    - 1 – Concrete Pump (8 hrs per day)
    - 1 – Crane (8 hrs per day)
    - 1 – Loader (8 hrs per day)
    - 1 – Dewatering System (24 hrs per day)

- **Building Structure – Piles/Foundation/Superstructure** (17-Jan-20 – 30-Mar-22)
  - Maximum of 95 delivery/concrete/haul truck trips per day
  - 700 workers
  - Equipment on worst-case day
    - 6 – Air Compressors
    - 6 – Welders (8 hrs per day)
    - 5 – Forklifts (8 hrs per day)
    - 4 – Man Lifts
    - 6 – Tower Cranes (8 hrs per day)
    - 3 – Backhoes (8 hrs per day)
    - 3 – Concrete Pumps (8 hrs per day)
    - 1 – Drill Rig (8 hrs per day)
    - 1 – Excavator (8 hrs per day)
    - 1 – Mobile Crane (8 hrs per day)

- **Building Envelope and Interior Construction** (06-Oct-20 – 09-Jun-22)
  - Maximum of 52 delivery/concrete/haul truck trips per day
  - 500 workers
  - Equipment on worst-case day
    - 6 – Air Compressors (8 hrs per day)
    - 5 – Forklifts (8 hrs per day)
    - 6 – Tower Cranes (8 hrs per day)
    - 3 – Man Lifts (8 hrs per day)
    - 3 – Welders (8 hrs per day)
    - 1 – Concrete Pump
    - 1 – Mobile Crane (8 hrs per day)

- **Paving/Concrete/Landscape/Cleanup** (05-Aug-21 – 25-Aug-22)
  - Delivery/haul truck trips per day included in item #4
  - Worker counts included in item #4
  - Equipment on worst-case day
    - 1 – Paver (8 hrs per day)
    - 1 – Tractor/Loader/Backhoe (8 hrs per day)
    - 1 – Skid Steer Loaders (8 hrs per day)

- **MEP Start-Up/Testing/Inspections** (12-May-22 – 29-Mar-23)
  - Maximum of 10 delivery truck trips per day
  - 25 workers
  - No equipment

Construction Activities – Ogden Parking Structure

- **Demolition/Grading/Shoring/Excavation** (Jan-23 – Feb-23)
  - Maximum of 105 loads out per day for haul trucks and 5 deliveries per day
  - 23,400 CY export
  - 40 workers
  - Equipment on worst-case day
    - 3 – Backhoes (8 hrs per day)
    - 1 – Dozer (8 hrs per day)
    - 1 – Drill Rig (8 hrs per day)
    - 1 – Excavator (8 hrs per day)
    - 1 – Forklift (8 hrs per day)
    - 1 – Loader (8 hrs per day)
    - 1 – Mobile Crane (8 hrs per day)

- **Structure** (Mar-23 – Aug-23)
  - Maximum of 3 loads out per day for haul trucks and 40 deliveries per day
  - 45 workers
  - Equipment on worst-case day
    - 2 – Backhoes (8 hrs per day)
    - 1 – Concrete Pump (8 hrs per day)
    - 2 – Forklift (8 hrs per day)
    - 1 – Tower Crane (8 hrs per day)

- **Cladding/Finishes** (Sep-23 – Dec-23)
  - Maximum of 3 loads out per day for haul trucks and 10 deliveries per day
  - 50 workers
  - Equipment on worst-case day
    - 2 – Forklift (8 hrs per day)
    - 1 – Tower Crane (8 hrs per day)

Worst-Case Day Scenarios

The phases of construction will overlap during the project schedule. Multiple construction activities will be occurring simultaneously and the worst-case days for each overlap are detailed below. These are not a typical day on the site, these are the maximum limit of what will ever occur on one given day.

- **Demolition & Grading/Shoring/Excavation**
  Demolition, grading, excavation, and shoring activities will occur simultaneously. During this phase, demolition crews will be working on tearing down the existing building and hauling the debris off-site. As portions are removed, sections of the land will be cleared for grading. Grading crews will be removing and adding soil to the site. Once sections are graded, excavation and shoring can begin there. Crews will excavate for appropriate basements and foundations, and install shoring. This sequencing will continue throughout the extent of demolition.

  - Maximum of 140 hauls per day
    - Export of existing building debris
    - Export of soil
    - Import of soil
    - Import of construction materials
  - 100 workers
  - Maximum On-Site Equipment
    - 13 – Loaders
    - 10 – Backhoe/Breakers
    - 3 – Mobile Cranes
    - 2 – Dozers
    - 2 – Excavators
    - 1 – Bore/Drill Rig
    - 1 – Concrete Pump
    - 1 – Dewatering System

- **Demolition & Grading/Shoring/Excavation & Piles/Foundation/Superstructure**
  Due to the large scale of the project and quick schedule; demolition, grading, shoring, excavation, piles, foundation, and superstructure activities will happen concurrently for a small portion of the project schedule. As stated above, sequencing will allow for certain areas of the site to progress forward while other portions are still on the previous phase. During a worst-case day, sections of the existing building will be demolished while sections of site are graded, excavated, and shored. Piles will be drilled and concrete pours will begin occurring as necessary for piles, foundations, and superstructure.

  - Non concrete pour day: Maximum of 140 hauls per day. Concrete pour day: Maximum of 105 hauls per day, 95 concrete truck trips per day
    - Export of existing building debris
    - Export of soil
    - Import of soil
    - Import of construction materials
    - Incoming and outgoing concrete trucks
  - 830 workers
  - Maximum On-Site Equipment
    - 13 – Loaders (8 hrs per day)
    - 10 – Backhoe/Breakers (8 hrs per day)
    - 6 – Air Compressors (8 hrs per day)

- 6 – Tower Cranes (8 hrs per day)
- 6 – Welders (8 hrs per day)
- 5 – Forklifts (8 hrs per day)
- 4 – Concrete Pumps (8 hrs per day)
- 4 – Man Lifts (8 hrs per day)
- 4 – Mobile Cranes (8 hrs per day)
- 3 – Backhoes (8 hrs per day)
- 3 - Excavators
- 2 – Dozers
- 2 – Drill Rigs
- 1 – Dewatering System

- **Piles/Foundation/Superstructure & Building Envelope/Interior Construction**
  Once the superstructure is erected in different areas of the site, the installation of the building envelope and interior build-out will occur. Concrete will continue to be poured for the necessary superstructure, insulation and waterproofing will be applied, glazing will be installed on the ground floor and second level of the structure, and the MEP trades will begin their rough-in.

  - Maximum of 147 delivery/concrete/haul truck trips per day
    - Import of construction materials
    - Incoming and outgoing concrete trucks
  - 800 workers
  - Maximum On-Site Equipment
    - 12 – Air Compressors
    - 10 – Forklifts
    - 9 – Welders
    - 6 – Tower Cranes
    - 4 – Concrete Pumps
    - 4 – Manlifts
    - 3 – Backhoes
    - 1 – Drill Rig
    - 1 – Excavator

- **Piles/Foundation/Superstructure & Building Envelope/Interior Construction & Paving/Concrete/Landscape/Cleanup**
  As the superstructure is finishing up, installation of the building envelope will continue. On the interior of the building, MEP trades will continue their installation while minimal framing occurs. Finishes will be performed and applied on the floors, walls, and ceilings. The site of the project will be graded appropriately, site concrete will be poured, and paver installation will begin.

  - Maximum of 147 delivery/concrete/haul truck trips per day
    - Import of construction materials
    - Incoming and outgoing concrete trucks
  - 800 workers
  - Maximum On-Site Equipment
    - 12 – Air Compressors
    - 10 – Forklifts
    - 9 – Welders
    - 6 – Tower Cranes
    - 4 - Backhoes
    - 4 – Concrete Pumps
    - 4 – Manlifts
    - 1 – Drill Rig

- 1 – Excavator
- 1 – Paver
- 1 – Skid Steer Loaders

- **Building Envelope/Interior Construction & Paving/Concrete/Landscape/Cleanup**
  Interior construction will consist of finishing touches and security measure installation. The site concrete and pavers will finish installation and planting of landscaping will occur. General site cleanup will begin.

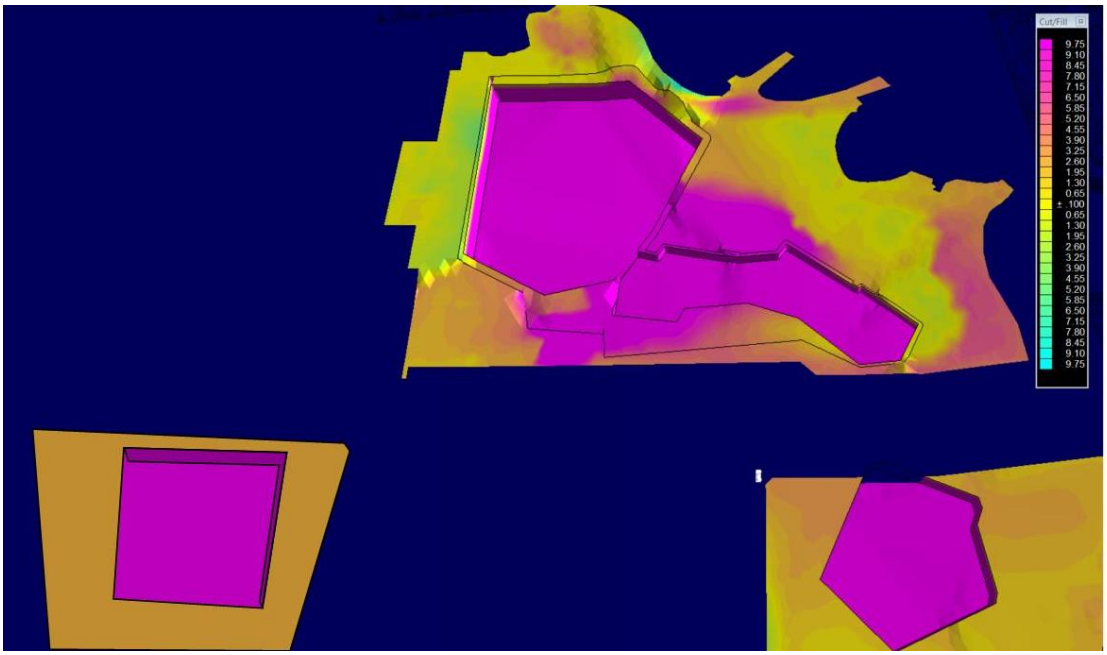
  - Maximum of 52 delivery/concrete/haul truck trips per day
    - Import of construction materials
    - Incoming and outgoing concrete trucks
    - Outgoing temporary facilities
    - Outgoing tower cranes and manlifts
  - 500 workers
  - Maximum On-Site Equipment
    - 6 – Air Compressors
    - 4 – Tower Cranes
    - 5 – Forklifts
    - 3 – Man Lifts
    - 3 – Welders
    - 1 - Backhoe
    - 1 – Concrete Pump
    - 1 – Mobile Crane
    - 1 – Paver
    - 1 – Skid Steer Loader

Grading Plan

The grading plan includes:

- 8 acres of grading
- 20 FT excavation at basements
- New Building Export – 127,600 CY of potentially contaminated material – 18-Oct-19 – 17-Apr-20
- Ogden Lot Export – 23,400 CY of potentially contaminated material – Early 2023
- New Building Import – 37,400 CY of fill

Soil Cut/Fill Diagram



Dust Control

- Watering to control dust during demolition
- All exiting trucks, equipment, and hauled material will be sprayed down prior to leaving the site
- Trucks with dust screens that close prior to exiting the site
- Frequent mud and dirt clean-up of surrounding streets
- Fabric covered fencing along the perimeter of the site
- Tall plywood fencing along certain areas of the perimeter of the site
- Temporary stone haul roadway inside the site for incoming and outgoing construction vehicles

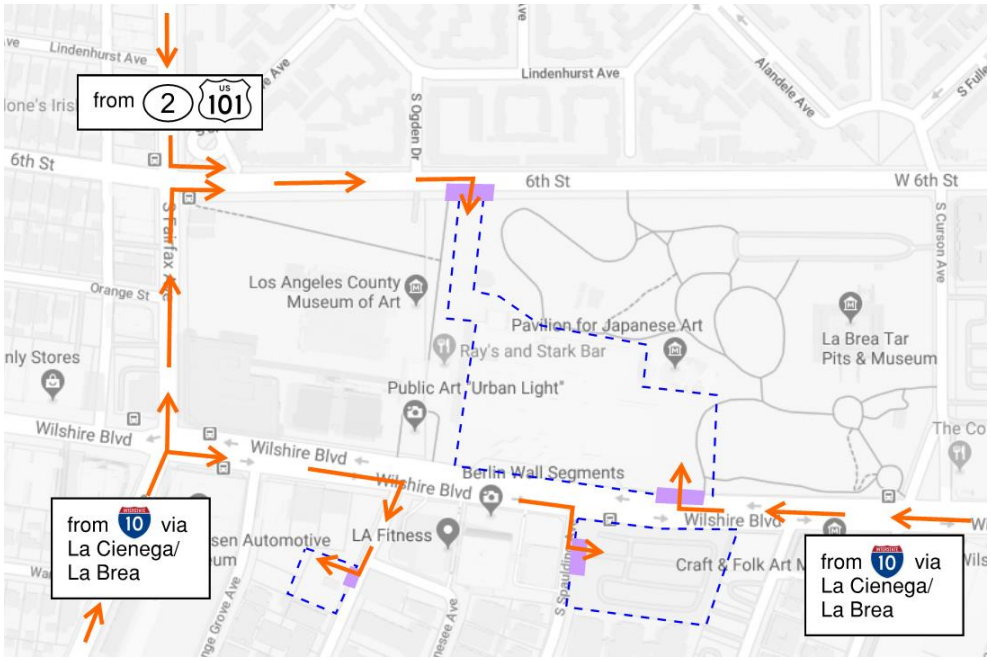
Sediment/Erosion Control

- Silt fencing
- Sloping the site inwards during excavation
- Full-time, self-contained dewatering system

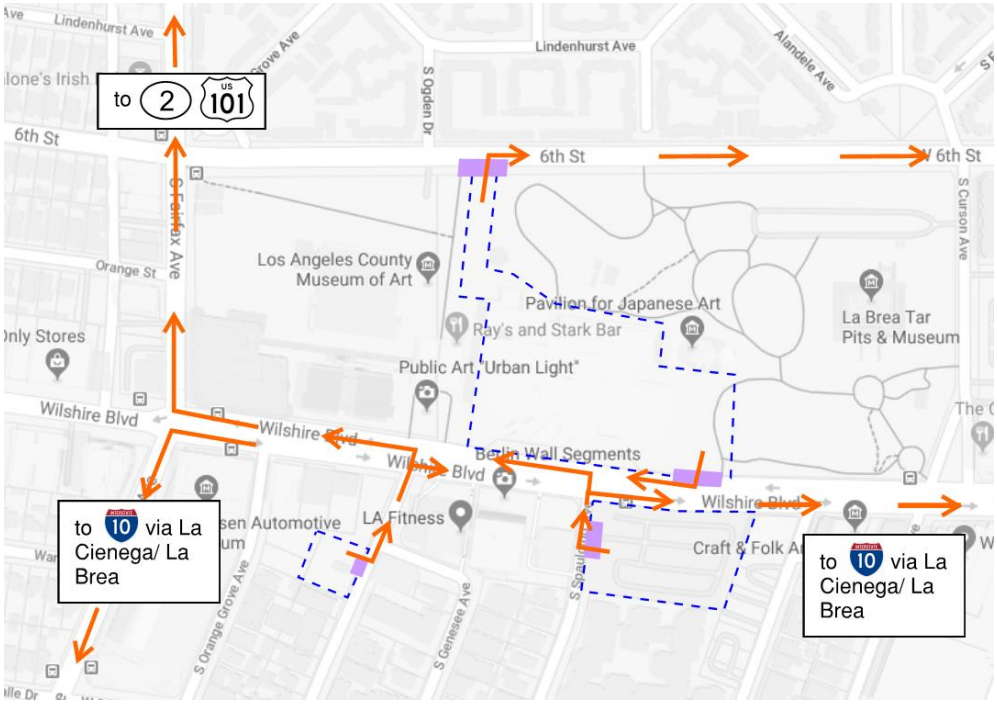
Anticipated Truck Routes

Trucks enter and exit only from the designated construction gates. Incoming and outgoing trucks will comply with haul hours as approved in the EIR.

Incoming Trucks:



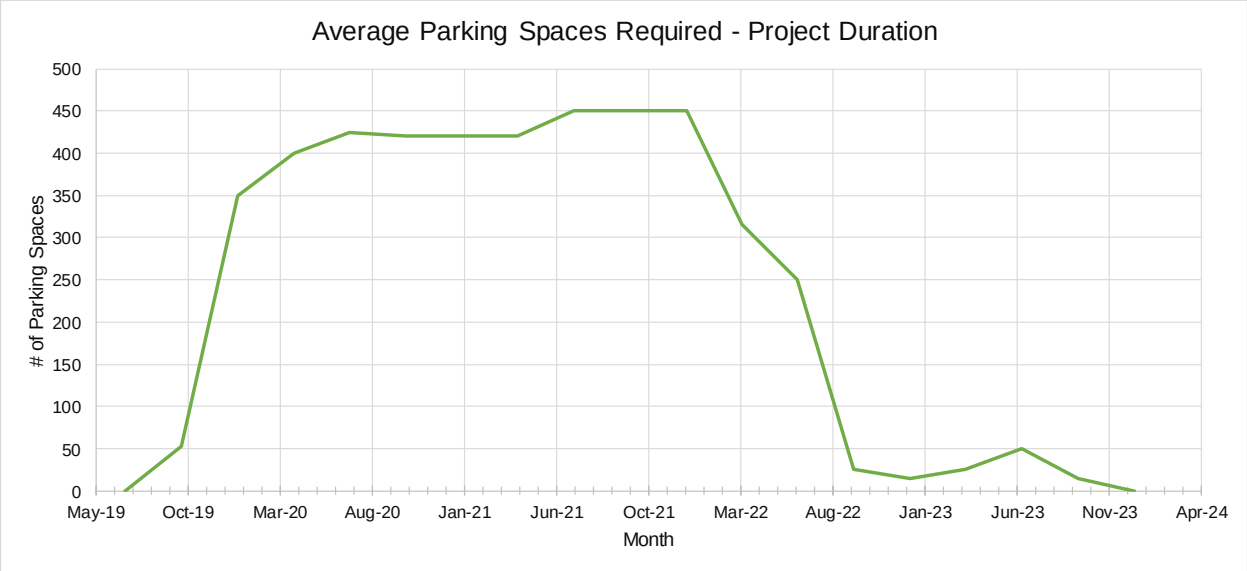
Outgoing Trucks:



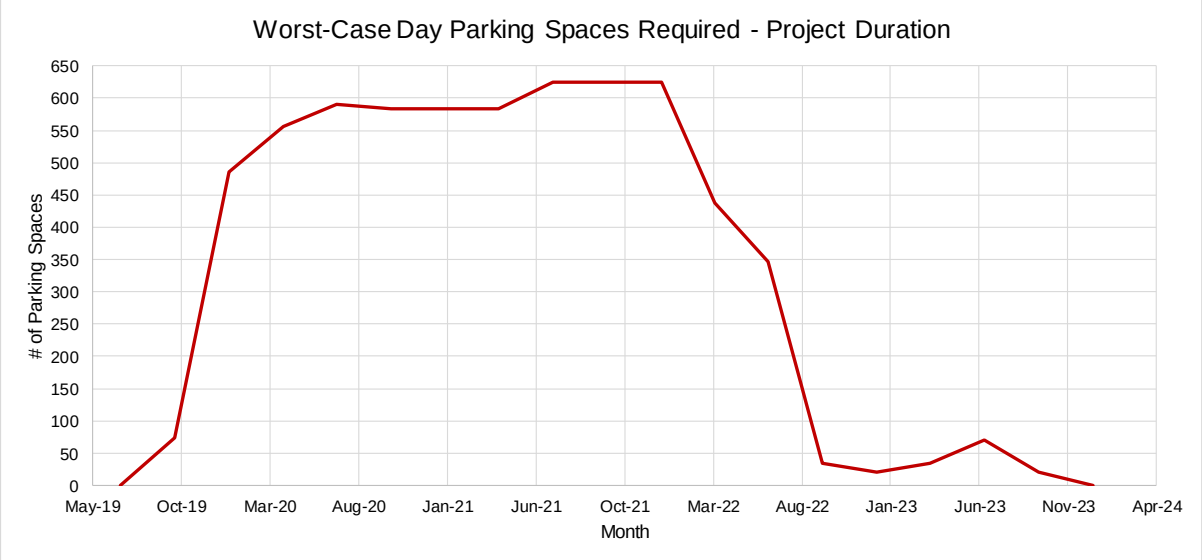
During grading and excavation, soil will be hauled to Chiquita Canyon. Below are two routes from the construction site to Chiquita Canyon.

Access and Parking

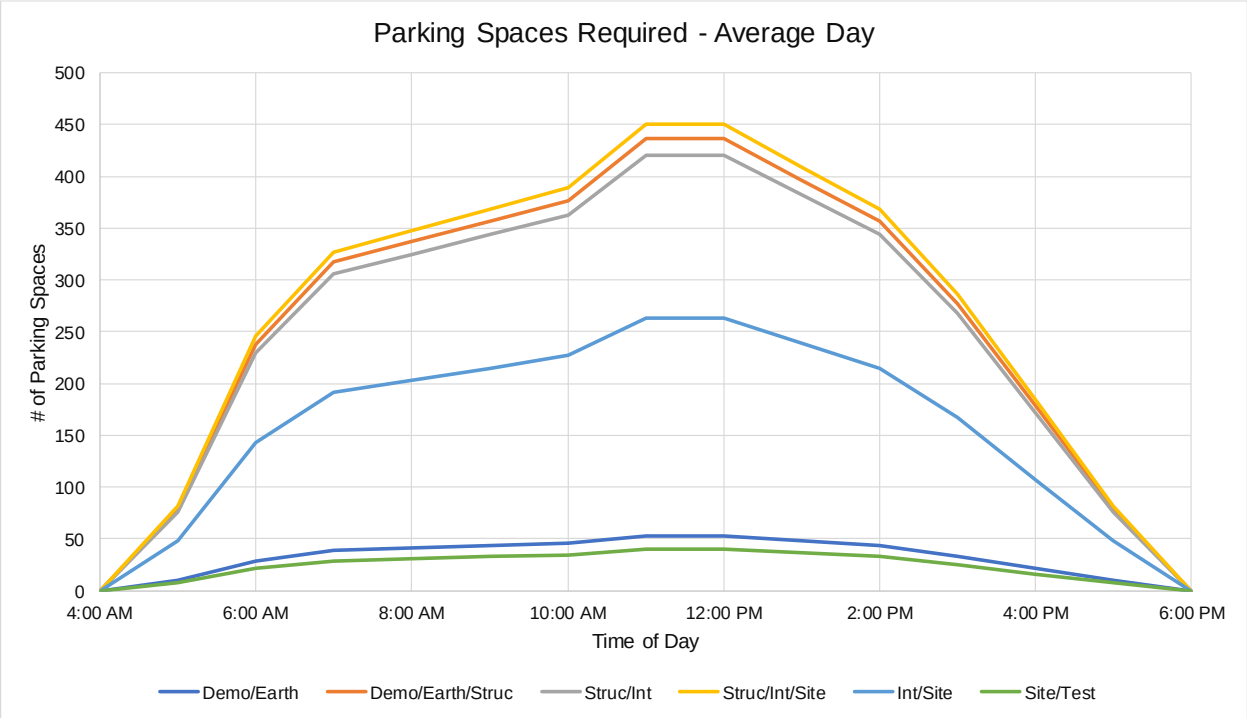
On an **average day**, the maximum amount of workers on site will be 600. Of those 600 workers on-site, we assume 15% will using public transportation, for a remaining count of 510. With the remaining 510 workers, we assume 1.135 passengers per vehicle to account for carpooling for a total of **450** vehicles requiring parking near the construction site. The graphs below represent the distribution of parking spaces needed based on worst-case day scenarios throughout the duration of the project.



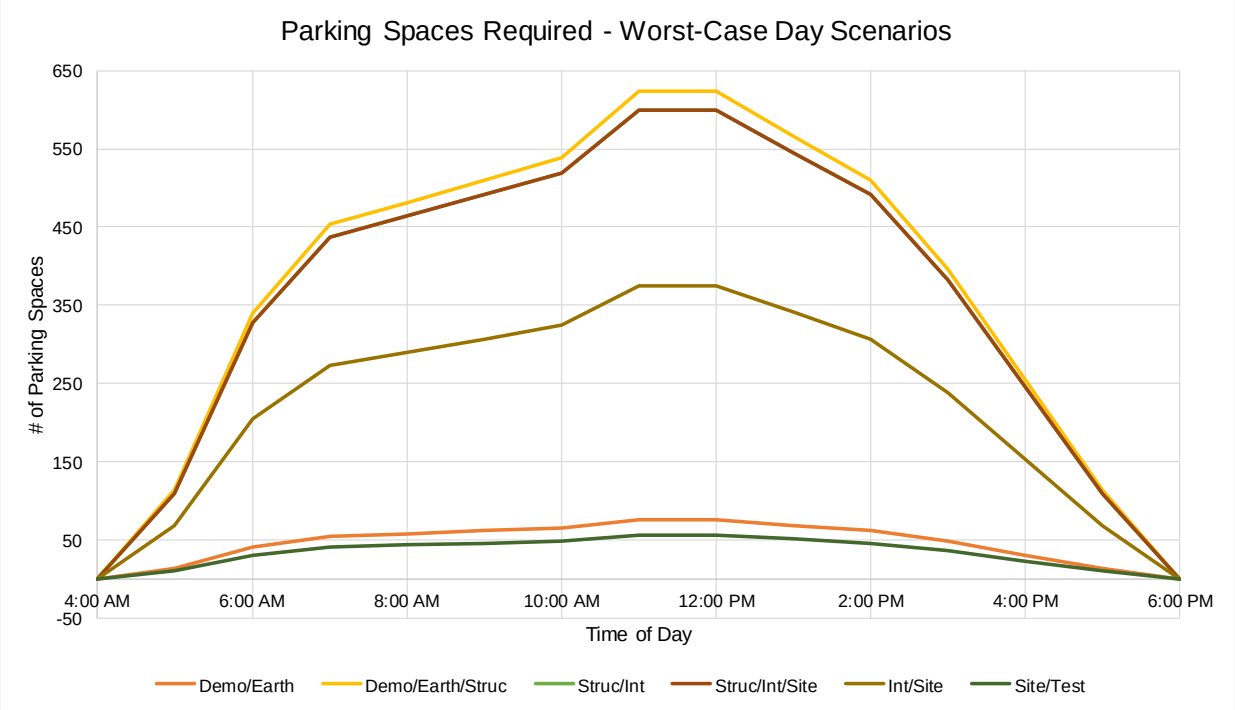
Taking into account the **worst-case day** scenarios, the absolute maximum amount of workers on site will be 830. Of those 830 workers on-site, we assume 15% will using public transportation, for a remaining count of 706. With the remaining 706 workers, we assume 1.135 passengers per vehicle to account for carpooling for a total of **622** vehicles requiring parking near the construction site. The graphs below represent the distribution of parking spaces needed based on worst-case day scenarios throughout the duration of the project.



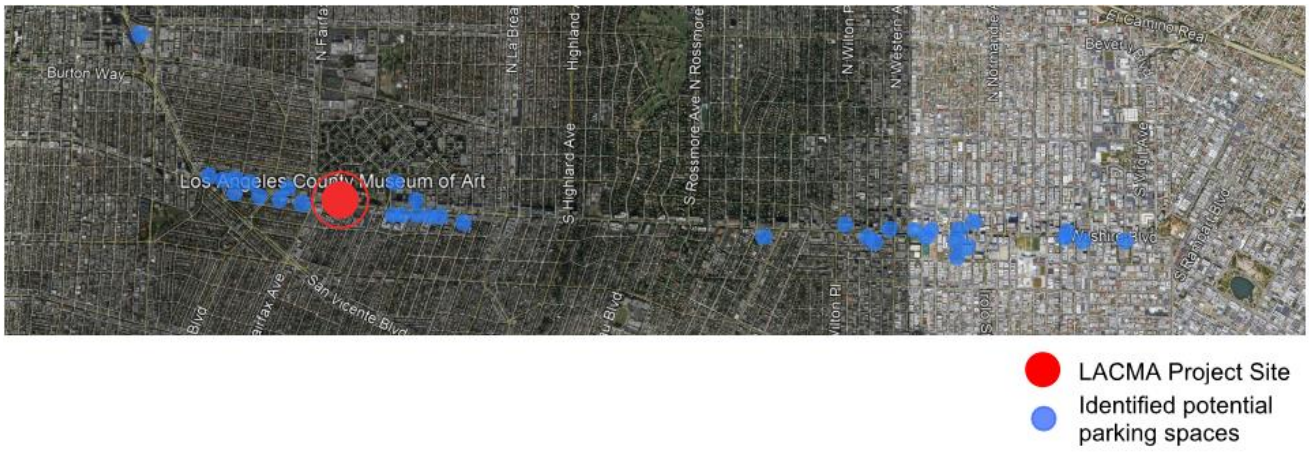
Normal working hours are from 7 AM to 5 PM. Workers will continuously be arriving on site throughout the day and departing at various times. The graph below shows the distribution of parking spaces that will be needed throughout the duration of an **average day** on site.



The following graph demonstrates parking space requirements during the **worst-case day** scenario for each phase of the project.



Clark has identified several available parking facilities in the surrounding areas with availability to accommodate the construction parking demand anticipated for the project (see Parking Survey attachment for detailed information). Preferred parking shall be provided for those who carpool to incentivize workers to travel together and shuttle service shall be coordinated for locations that exceed the acceptable walkable distances to the jobsite. Clark shall work with the different parking facility operators to define the maximum allowable parking spaces for any given time during construction of the project. Construction vehicle staging will occur along Wilshire Blvd. and West 6th St. bordering the site.



Metro Construction
Per the Metro schedule provided (updated May 2016), station construction is projected to proceed concurrently with museum construction. Those operations will have their own staging and lane closure issues and will need to be coordinated with the museum's work.

Noise Mitigation
To limit the noise that escapes and ensure the security of the site, robust 10 feet tall construction fencing will be erected around the perimeter of the site. Paying consideration to the portion of the site that borders Spaulding Avenue, sound-attenuating fence will be put into place in that specific location to control the amount of construction noise heard by the nearby office buildings.

Air Quality Control
All construction equipment with applicable engines will comply with Tier 4 regulations.

Work Hours
Normal work hours will be from 7 AM – 5 PM. Potential after-hours work permit requests may be made for activities such as tower crane erection, major concrete pours, and falsework construction over Wilshire Blvd. Concrete pour days may result in work activity on-site up to 14 hours in one day and will be submitted for approval on a case-by-case basis. Throughout the duration of the project, an estimated 40 days will require after-hours concrete pours.

Construction over Wilshire Blvd

The construction over Wilshire Blvd will require a temporary falsework structure spanning the boulevard. The falsework will be similar in construction and appearance to falsework for the construction of highway and railroad bridges. The design of the falsework will be by Atkinson Construction. Clark Construction has already begun and will continue coordination with the nearby Metro construction project to ensure the two projects do not impact each other in any way.

The falsework will be composed of steel and wood elements that will span Wilshire Blvd with temporary intermediate supports (columns) in the existing median of Wilshire Blvd. These temporary supports and adjacent protective elements will be robust enough to withstand vehicle impacts. These supports will require removal of the west bound left turn lane from Wilshire Blvd at Spaulding Avenue during falsework erection.

The falsework for the structure over Wilshire will be in place approximately 12 months.

Erection of Falsework

The erection of the falsework system will require use of the two tower nearest tower cranes and one mobile assist crane on the south side. The falsework system will be installed in two segments. One segment will be over the westbound lanes of Wilshire Blvd. During this time, traffic traveling westbound on Wilshire Blvd. will be rerouted until after passing the intersection at S. Spaulding Ave. The second segment will be over the eastbound lanes of Wilshire Blvd. During this time, traffic traveling eastbound on Wilshire Blvd. will be rerouted until after passing the intersection at S. Stanley Ave. Each segment will be installed during the week and possibly on Saturdays within the permitted hours of construction outside of the peak traffic hours for up to two weeks. Traffic will be one lane in each direction, switching lanes halfway though.

Wilshire Boulevard Traffic Plan
Falsework Erection & Removal over Westbound Lanes

Wilshire Boulevard Traffic Plan
Falsework Erection & Removal over Eastbound Lanes

Removal of Falsework

The falsework system will be removed in the same sequencing as the installation. The same lane closures will be required during this phase and removal will also occur during the week and possibly on Saturdays within the permitted hours of construction. Traffic will be one lane in each direction, switching lanes halfway though.

CLARK CONSTRUCTION

LOS ANGELES COUNTY MUSEUM OF ART
- EXISTING SITE

KEYNOTES

0.01 EXTERIOR TAR PITS AND PAVILIONS PROTECTED AND OPEN TO THE PUBLIC DURING CONSTRUCTION

NOTE A ABATEMENT OF EXISTING BUILDINGS BY OTHERS PRIOR TO START OF CONSTRUCTION

NOTE B RELOCATION OF LACMA OFFICES BY OTHERS PRIOR TO START OF CONSTRUCTION

NOTE C STORAGE OF LACMA EXHIBITS BY OTHERS PRIOR TO CONSTRUCTION

LEGEND

- CONSTRUCTION FENCE - STANDARD
- CONSTRUCTION BARRICADE W/ GRAPHICS
- SIDEWALK CLOSURE SIGNAGE
- PEDESTRIAN FOOTPATH
- LACMA GUEST VEHICLES
- MUSEUM SERVICE VEHICLES
- CONSTRUCTION VEHICLES

CLARK CONSTRUCTION

LOS ANGELES COUNTY MUSEUM OF ART
- SITEWORK/FINISHES/SUBSTANTIAL COMPLETION/PROJECT COMPLETE

KEYNOTES

12.01 CONSTRUCTION PARKING

12.02 SEGMENT 2 AND 3 HARDSCAPE COMPLETE. LANDSCAPING NEARLY COMPLETE

12.03 INTERIOR FINISHES COMPLETE

12.04 COMMISSIONING ONGOING

12.05 CONSTRUCTION FENCE REMOVED. PERMANENT PERIMETER FENCE INSTALLED

LEGEND

CONSTRUCTION FENCE - STANDARD

CONSTRUCTION BARRICADE W/ GRAPHICS

SIDEWALK CLOSURE SIGNAGE

PEDESTRIAN FOOTPATH

LACMA GUEST VEHICLES

MUSEUM SERVICE VEHICLES

CONSTRUCTION VEHICLES