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PART 1 - INTRODUCTION

1.1 PURPOSE

- A. This section describes general design criteria for parking design beyond New Haven Municipal Ordinances and local Building Code.
- B. The overall design is intended for parking lots to become part of Yale’s seamless campus environment through use of surrounding character defining features and incorporation of green space. Design shall consider green infrastructure, the pedestrian experience, parking, and maintenance relative to landscaping and snow removal. The parking lot design also needs to explore the opportunity for parking lots to serve as flex space for alternative uses in the absence of vehicles, this aligns with Sustainability goals for space utilization.
- C. This section functions as a reference to locate a wide range of information relating to Yale’s design expectations. A primary focus of parking design needs to relate to green infrastructure and stormwater management. Stormwater Management falls under the Stewardship Ambition of the Yale Sustainability Plan 2025 which addresses resiliency and ties together many of the wider University ambitions; Leadership, Climate Action, Built Environment, and Yale’s commitments to the broader New Haven community. 01352 Sustainable Design Requirements address how sustainability requirements should be included based on project scope.

PART 2 - GENERAL REQUIREMENTS


- 2.1 Each project, regardless of scale or scope, is required to refer to the following reference guideline documents, found on the Office of Facilities Contractor and Consultants website: “A Framework for Campus Planning, 2000”, the 2013 “Sustainability Supplement” to the Framework for Campus Planning, the “Sustainable Stormwater Management Plan, 2018”, the “Yale University Guidelines for Making Buildings Accessible to Persons Who Have Disabilities”, and the “Yale Office of Facilities Preferred Planting list”. Other University documents that require reference are the “Yale University Signage Manual” and the “Fleet Management Policy; 1705”. These reference documents are to be consulted and their findings incorporated into the project design. In addition, all projects shall complete the Yale Basis of Design (BoD), Landscape and Civil Systems as required reporting.
- 2.2 OVERALL DESIGN
 - A. Design shall review opportunity to use green space as infrastructure to manage stormwater and provide pedestrian experience. The general approach should consolidate parking to the center with perimeter plantings and limited islands of large dimensions. The design should also link and perimeter bicycle or pedestrian paths of travel.
 - B. Design shall consider the parking space count, typically a range provided by planning, to determine the site’s impervious surface. The design is required to manage water per New Haven zoning requirements using Stormwater Management and Treatment Principles, as described below. The design should be created to utilize as much green infrastructure for stormwater management as the project site will

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allow.

- C. The pedestrian pathway should drive the physical organization of the parking lot. Pedestrians will naturally take the most direct route to their destination; the design needs to recognize and provide safe travel, visibility lines, and experience based on these desire lines. The following considerations frame ideal conditions of a parking lot. Site constraints and unique situations will inform how these considerations are incorporated.
1. Rectangular organization – All parking lots are preferred to be of a rectangular shape with parallel sides for efficient space use, pedestrian visibility, and ease maintenance procedures.
 2. Aisle orientation – aisles are preferred to be parallel to pedestrian travel to minimize vehicle and pedestrian interaction. Aisles are preferred to accommodate 2-way traffic and be accessible from 2-sides (no dead ends).
 3. Stall organization - 90-degree stalls are preferred.
 4. Special considerations for high turnover lots
 - a. Pedestrian collection – walkways are preferred to run parallel to aisle orientation
 - b. Parental spaces – located near handicap spaces to accommodate stroller/car seat use
 - c. 9’6” parking stall width – ease of use and reduction of “door dings”
 5. Islands – minimal use is preferred with placement towards the perimeters. Best practices would organize islands to soften the visual approach to the destination and separate pedestrians from higher use traffic corridors.
 6. Control of vehicular speed – should a parking lot length be of a distance where vehicular speed may be of concern a break in the aisle should be inserted with a stop sign and cross walk as speedbumps are undesirable. An opposite vehicular travel lane should intersect here to allow easier lot access.
 7. Lot separation – should a parking lot need to be divided into sub-lots the division must be through islands, refer to and meet island requirements noted below, or a permeant structure capable of withstanding plowing operations.
 8. Trucking routes for delivery and dumpsters – where possible these access routes should not intersect with pedestrian routes.
 9. Entry/exit spacing – space entrances and exits from nearby intersections to prevent back-ups of traffic, allow for safe distance based on the anticipated traffic volumes of the driveway and adjacent streets typically 300 to 600 ft from an intersection. For larger lots, over 100 parking spaces or for areas of high sensitivity and/or density coordinate design with a Traffic Impact Analysis
- D. Garage design shall incorporate all applicable principles that the project site will allow. Special considerations that should be incorporated
1. Snow removal
 - a. A snow landing zone should be planned for a minimum of 1 side of the garage. The first floor wall should be a minimum of 15’ tall to ensure snow does not fall into lower levels of the garage.
 - b. No woody plant material shall be installed within these snow landing zones
 - c. Melting systems are not considered a viable option

PART 3 - MINIMUM REQUIREMENTS

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3.1 ACCESSIBILITY

- A. The overall design needs to be in accordance with all applicable New Haven Municipal Code, “Americans with Disabilities Act of 1990 Accessibility Guidelines” (ADAAG) and “Guidelines for Making Buildings Accessible to Persons Who Have Disabilities”.
- B. All deviations from these documents must be discussed with the Provost Advisory Committee on Accessibility Resources for Students and Employees with Disabilities.

3.2 BLUE PHONES – SECURITY INTERCOMMUNICATION SYSTEM

- A. All parking lots shall include a minimum of 1 Yale “Blue Phone” for direct emergency contact of University Police.
- B. All Blue Phones locations shall be approved through Public Safety.
- C. Blue Phones are owner furnished and contractor installed.
- D. Contact Public Safety at safe@yale.edu

3.3 LIGHTING


- A. Lighting shall reference standard “26 56 00 Exterior Lighting” per the Facilities Website
- B. Lighting shall be designed to minimize light pollution beyond the targeted area to be lit on to non-Yale lighting including lighting pollution into the night sky.
- C. Coordinate ideal distance from curbing with signage manual.

3.4 STORMWATER MANAGEMENT

- A. Principles of Stormwater Management prioritize restoration of watershed function through low-impact stormwater management strategies. These principles can be incorporated into parking design through Natural Features, Landscapes, and Green/Grey Infrastructure Systems. The design should refer to the 2013 Yale University Sustainable Stormwater Management Plan Appendix B – Green Infrastructure Options for Yale University. The following principles are listed in order of preference of treatment.
- B. Treatment Principles
 - 1. Infiltration of storm water where it falls
 - a. Green infrastructure systems – the preferred method of stormwater infiltration, raingardens/vegetated bioswales, bring together many University ambitions and sustainability objectives; pollution prevention, biodiversity, greenspace, and reduction of urban heat island. YoF Preferred Plant list should be referenced.
 - 2. Grey water infrastructure systems –
 - a. Storage for infiltration or reuse.
 - b. Temporary detention and gradual release of stormwater to the storm sewer
 - c. Temporary detention and gradual release of stormwater to the combined storm and sewer system.

3.5 SURFACES

- A. Lot Surface – the material used should be reviewed on a case by case basis. Preferred material is environmentally responsible through considerations like imbedded carbon, permeability, and environmental toxicity through production.
 - 1. Lot Surface Type Matrix

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- a. Paving types (impervious, porous, asphalt, light gray asphalt binder?, concrete, paver, stabilized stone, etc), cost, required maintenance, lifespan, source of materials, stormwater system comparison – green vs grey
- 2. Stormwater matrix
 - a. Island dimensions/ratio to impervious space
- B. Reflectivity – Yale’s preferred method to address the City of New Haven Site Requirements Section 60.2 is to have 50% of the impervious surface constructed using a material with a Solar Reflective Index of at least 29 and must meet any further Site Requirements. Plantings for shade are strongly encouraged on perimeter landscape spaces and within parking island guidelines but should not be used as a primary method to reduce reflectivity.
- C. Striping and marking shall be in accordance with New Haven Municipal Ordinances and the Yale University Campus Signage Manual.

3.6 PARKING INVENTORY - OVERALL PARKING PLAN

- A. The overall design and parking space inventory must be submitted to the University Parking and Transit to ensure plans are consistent with Yale University’s Overall Parking Plan.
- B. Submission must include the Lot Number, Location (address), Total Parking Inventory, Assigned counts, and Surplus counts.
- C. Impacts to the current OPP such as temporary lot closures and expected date of access must also be relayed.
- D. Contact University Planning and University Parking and Transit at parking@yale.edu

3.7 GATE SYSTEMS

- A. All gate systems shall be approved through University Parking and Transit.
- B. Typical gate systems
 - 1. AMANO McGann – AGP – 1710.
 - 2. Functions: lot entrance with card access, exit with vehicular sensor.
 - 3. Typical gate system, including the vehicle surface, shall be installed on a concrete pad.
- C. Contact University Parking and Transit at parking@yale.edu


3.8 SHUTTLE STOPS

- A. All shuttle considerations need to be approved by University Parking and Transit.
- B. Bus shelters are not permitted on City of New Haven property.
- C. Bicycle racks shall be considered at all Shuttle Stop locations.
- D. Contact University Parking and Transit at parking@yale.edu

3.9 SIGNAGE

- A. All signage shall be approved and procured through the Office of the University Printer.
- B. All signage shall be in accordance with the Yale University Campus Signage Manual which can be found at the University Printer’s website: <https://printer.yale.edu/>
- C. Contact for the Office of the University Printer can be found on the University Printers website <https://printer.yale.edu/>


3.10 CHARGING STATIONS

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- A. Charging stations shall be considered for all lots when possible. Charging locations, stations, pad setup, and model selection shall be approved and procured through Fleet Management.
- B. Charging stations shall be ChargePoint CT4000 commercial charging station, or equivalent upon approval of Fleet Management.
- C. A standard single port station shall be provided with a single 208VAC, 40A dual pole panel breaker.
- D. A standard dual port station shall be provided with two independent 208VAC, 40 A dual pole panel breakers.
- E. A standard dual port station can be fed from a single 40A dual pole breaker if a *Power Share* charging station is selected. These units should only be selected with approval of Fleet Management.
- F. If panel capacity is limited and 40A breakers cannot be equipped, *Power Select* options are available for use with 30A and 20A breakers. These units should only be selected with approval of Fleet Management.
- G. All stations shall be provided with non-GFCI breakers as not to interfere with the internal charging circuit interrupting device.
- H. All charging stations shall be in accordance with Yale University Fleet Policy 1705.14 which can be found at Fleet Management’s Policy website: <https://your.yale.edu/policies-procedures/policies/1705-university-fleet-policy>
- I. Contact Fleet Management at yalefleet@yale.edu

3.11 LANDSCAPING & MAINTENANCE

- A. Fencing and screening
 - 1. Fencing is generally avoided for pedestrian safety reasons.
 - 2. Screening is considered on a site by site basis based upon site constraints and unique situations.
- B. Snow removal
 - 1. Snow shelf – considered the first 5 feet of landscape beyond the curb line this area will be the primary location snow is plowed onto. One out of four sides of any lot should have a snow shelf to accommodate snow removal, preferably opposite to the longest run of the lot.
- C. Landscape islands
 - 1. Islands should be a minimum width of 10’. If space does not allow green spaced should be adding to the building landscape or perimeter landscape. Designs should limit the number of islands within the parking area. Fewer islands of larger size will result in successful plant material
 - 2. Island plant material
 - a. Vegetation shall be based on the Yale Office of Facilities preferred plant list.
 - b. Plant material within the snow shelf must be salt tolerant and capable of withstanding plowing operations.
 - c. Use of woody material should be a minimum of 5’ within any island.
- D. Edge treatment
 - 1. Locations where surface function changes, vehicular to pedestrian/vehicular to landscape, need to have clear definition. Curbing – Yale curbing details shall follow New Haven Municipal Ordinances and Building Code details. Preferred types of curbing are as follow
 - a. Granite curbing – located on curbs directly adjacent to buildings or traffic corridors. Edge type for change between vehicular to pedestrian or vehicular to landscape.
 - b. Concrete curbing – located on cubs between vehicular to pedestrian or vehicular to

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landscape.

2. Curbing on parking lot islands shall avoid interior 90-degree angles.

E. Bollards

1. Bollards to be concrete filled painted steel pipe, pillars or removeable type, placed in strategic areas of the lot to assist with directing, pedestrian, bike, and vehicular flow and to provide high impact protection from collisions.

3.12 SUSTAINABLE TRANSPORTATION

A. Sustainable Transportation Framework outlines the goals of incorporating bike paths into the framework of Yale designs. If applicable these concepts shall be incorporated into the overall lot design.

B. Bike racks shall be installed per standard 32-33-13 Site Bicycle Racks

Date	Description of Change	Pages / Sections Modified	ID
06/11/20	Entire document	-	
03/2021	Engineering Revisions		JP