The arrival of the automobile in the early 20th century presented challenges to campus planning that eventually led to a ban on automobiles from locations designated in Douglas Orr’s 1963 Plan. The ban was instituted in part to maintain the intimacy of the growing university’s environment and retain the traditional ten-minute interval between classes. Today, the automobile is an unavoidable reality, and so the Campus Plan proposes sustainable ways to accommodate cars while preserving the integrity and pedestrian character of campus landscapes.
PARKING
Developing sustainable strategies to address parking demand for a growing campus population

The Campus Plan addresses the inevitable presence of the automobile. Careful planning of the size, location, and design of parking facilities has aimed to preserve the walkable nature of the campus and the character of campus neighborhoods. In the plan, these goals are balanced against the necessity to provide adequate parking in a suburban setting that offers few alternative transportation modes.

The Dinky is a valuable asset to the University and the community, but it does not connect the majority of campus commuters to their points of origin. Faculty, staff, students, and visitors who do not have easy access to mass transit consequently drive to campus. Dependent on their vehicles, these drivers are greatly affected by the location and convenience of their designated parking spaces.

The location of parking has a major impact on roadways and intersections in the immediate vicinity. It also determines the routes and frequency of shuttle service between the remote facilities and the commuter’s campus destination.

PLANNING APPROACH AND ANALYSIS
As of 2006, the University had approximately 6,800 parking spaces on campus, mostly in surface lots. The total number of spaces included approximately 1,450 spaces at housing sites such as Butler Tract and Lawrence Apartments, and approximately 1,550 spaces for campus plant vehicles, mostly at the MacMillan building. The remaining 5,200 spaces were allocated to faculty, staff, graduate students, and undergraduate students in numbered and lettered lots. Visitor parking is also factored into that number, mostly at Lot 21 and the Lot 7 garages.

Currently, the University provides employees and students with permits for parking on campus. Although there is enforcement of parking permits by the Department of Public Safety, parking facilities do not have gates, card readers, or any other controls to monitor usage. Vehicles entering the Core Campus via Elm Drive are expected to stop at guard booths in order to obtain clearance. Parking permits are free to all employees, and there is no charge for visitor parking on campus.

That does not include undergraduate vehicles parked in eating club lots. Freshmen are not permitted to have cars on campus.

Between 2006 and 2016, the campus population is expected to increase, and several parking lots will be developed into new buildings, resulting in the need to identify new parking lots to offset losses and meet additional demand. A significant portion of that demand stems from the approximately 1,000 spaces that are being displaced by new construction (see the map on the facing page). Visitor parking demand is also expected to increase.

The Arts and Transit Neighborhood will draw more visitors, as will the growth in academic departments and the student population.

Along with commencement and reunions, large athletic and cultural events will continue to draw drivers to campus, requiring a parking strategy that addresses the demand for parking during evenings, weekends, and special events.

Drivers arriving for events or lectures may not be as familiar with the campus as students or daily commuters are; therefore, wayfinding and signage are critical components in the planning and design of parking facilities.

PARKING FACILITIES
Parking facilities are scattered throughout the campus, though few are within the historic core. All parking lots are at full capacity except for the remote lots—namely, Lots 19, 21, and 23A. Several of the existing lots will be displaced in the next ten years as new buildings are developed in the Natural Sciences, the Arts and Transit, and the Prospect Avenue and William Street Neighborhoods.
**RECOMMENDED PARKING STRATEGIES**

To address anticipated growth and adhere to defined goals, the planning team analyzed and evaluated available parking options in terms of capacity, feasibility, cost, traffic, shuttle operation, design opportunities, environmental and community impacts, and long-term benefits. Based on surveys of existing usage and occupancy, these parking lots have extra capacity. Before any new parking is developed, the University will utilize this parking surplus. To ensure that the spaces are accessible and convenient, the campus shuttle service will be extended to serve the commuters newly assigned to these lots.

Currently there are approximately 850 parking spaces dedicated to sophomores, juniors, and seniors on campus. Starting in fall 2019, on-campus undergraduate parking will be limited to juniors and seniors, thus reducing the number of cars on campus. In spring 2020, some administrative staff members who are currently on campus will be relocating to a new building on Canal Pointe Boulevard. This will further transfer cars off campus and, in turn, reduce vehicle miles traveled since most of the commuters will be arriving via Route 1.

The University is also in the process of evaluating a variety of transportation demand management (TDM) strategies to reduce the overall number of cars on campus. This includes incentives to commuters to switch from single passenger vehicles to alternative modes. Some potential strategies include providing employees with tax-deductible transit vouchers, creating preferential parking for carpools, and improving pedestrian and bicycle routes to campus. When combined with a campus-wide education and public relations program, these strategies may realize up to a ten percent reduction in the number of cars on campus in the next ten years—the equivalent of a 1.5-acre parking lot.

Although the existing surplus can meet the demand for parking in the next few years, it cannot meet the full ten-year demand, especially as existing surface lots are displaced by new construction. A new parking facility on the east side of campus will increase supply by approximately 1,000 spaces. Rather than providing incremental annual increases in the form of scattered asphalt surface lots, the new facility satisfies ten years of parking demand at one time. It will accomplish this while converting the largest surface lot on campus (Lot 21) into athletic fields that are in character with adjacent open space and athletic uses. The new parking structure will take advantage of the sloping grade of its site to provide three levels of parking without significant visual presence on Western Way (see below). The structured parking is set back from Western Way deliberately to maintain a more landscaped buffer of terraced parking bays. The surface parking lot also provides potential long-term academic development opportunities along Western Way between the stadium and FitzRandolph Road.

Apart from offering design opportunities, the site has strategic advantages over other potential sites evaluated by the planning team. Since the destinations of the majority of faculty, staff, and off-campus graduate students are buildings off Washington Road or Shapiro Walk, it is highly desirable to locate the new facility on the east side of campus in order to be accessible by walking for as many people as possible. This location is within walking distance of the Natural Sciences Neighborhood and the concentration of academic buildings from the E-Quad to Firestone Library.

This location also promotes the use of Faculty Road for vehicular access, as Faculty Road has sufficient capacity to handle additional traffic volumes. A new “Stadium Road” will encourage commuters to approach via Faculty Road, thus minimizing garage traffic on adjacent residential streets. Some commuters who currently park on the west side of campus and shuttle to the east side will be reassigned to the new parking facility. This will free up spaces in the Lot 7 garage for visitors and commuters destined for the Arts and Transit Neighborhood.

Prior to constructing a new garage, parking demand will be met at existing surface lots with additional or potential capacity (1). With the opening of the new parking facility (2) on the east side of campus, some of the commuters who currently park in the Lot 7 garage (3) will be reassigned to the new facility. This will vacate spaces in the Lot 7 garage so that they can be assigned to faculty, staff, and visitors in the Arts and Transit Neighborhood.
Traffic Planning

Optimizing vehicular, bicycle, and pedestrian movement while reducing impacts on residential neighbors.

Controlling traffic movement in and through Princeton is a challenge for two reasons: there has been and continues to be significant growth in surrounding communities, and the existing road network is inadequate to cope with the volume of vehicles. Future growth is likely to shift the distribution of both people and parking on campus, so the Campus Plan takes into account both short-term and long-term traffic projections and roadway improvements.

PLANNING APPROACH AND ANALYSIS

Based on traffic counts at all intersections in the campus region, the planning team confirmed not surprisingly that most of the regional peak-hour traffic uses Nassau Street, Alexander Street, Washington Road, and Harrison Street. Because of their configuration, the Route 1 intersections at Washington Road and Harrison Street experience congestion during the morning and afternoon peak periods, whereas the cloverleaf interchange of Alexander and Route 1 has a larger capacity to accommodate peak hour traffic.

Closer to campus, congestion occurs along Nassau Street at various times of day. Because the five-point interchange at Faculty Road between Alexander Street and Elm Drive, especially as afternoon traffic exits the Lot 7 garage along Faculty Road between Alexander Street and University Place, the conflicting movements of vehicular and pedestrian traffic cause extensive delays and back-ups. Further south, congestion is typical during the peak hours as drivers converge at the intersection of Alexander Street and University Place, the conflicting movements of vehicular and pedestrian traffic cause extensive delays and back-ups.

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New projects on campus will create opportunities to improve traffic circulation. The new Arts and Transit Neighborhood will address congestion at the intersection of Alexander Street and University Place and provide a Transit Plaza at the new Dinky station and direct access to the Lot 7 garage (1). Access to the new parking facility will be established via an improved Stadium Road (2) and FitzRandolph Road. Traffic-calming measures will be implemented along the southern length of Washington Road to reduce vehicular speeds and increase pedestrian safety (3).
The reallocation of land uses, parking, and transit functions in the Arts and Transit Neighborhood will eliminate the clustering of conflicting movements and facilitate the circulation of pedestrians, shuttles, and vehicles.

Traffic calming and pedestrian safety on Washington Road
In addition to the Forbes College crossing on Alexander Street mentioned above, pedestrian safety is a concern along Washington Road. As a main gateway into the heart of campus, it serves vehicles and pedestrians, the campus, and the region. In order to ensure pedestrian safety and the smooth flow of traffic, a series of street crossing and traffic calming strategies are recommended, especially along the southern portion of the road. Based on an analysis of existing conditions and accident reports, the planning team determined that the portion of Washington Road south of the borough-township line poses the greatest risk for pedestrians and cyclists. This section of the road has a higher speed limit, wider travel lanes, and lower lighting levels. Based on three years of accident data, the highest rate of pedestrian, bicycle, and vehicular accidents occur at the intersection of Faculty Road and Washington Road. Streecker Bridge, an elevated pedestrian bridge connecting the new Chemistry plaza to the Ellips, will provide a safe crossing where one does not currently exist. In addition to the planned bridge, the Campus Plan recommends a median that would extend between Goheen Walk and Faculty Road. Although much of the median will be composed of a flush textured paving system that does not obstruct emergency vehicles, segments of the median will feature raised landscape areas and pedestrian refuge areas, especially at Goheen Walk and Faculty Road.

In addition to slowing traffic and providing safer crossings, the Campus Plan proposes improving north-south pedestrian pathways that parallel Washington Road and form a “ladder” from the Natural Sciences Neighborhood up to Nassau Street (see the Natural Sciences Neighborhood section). In the spirit of protecting the integrity and safety of pedestrian pathways on campus, the plan also recommends restricting non-University delivery and service vehicles from main campus pathways. Dedicating and centralizing delivery and trash collection locations will reduce the number of vehicles that currently use pathways to access buildings across campus.

Bicycle routes and storage
In order to promote safety and to encourage cyclists to commute to campus, the plan recommends that dedicated bicycle routes be created along major routes leading into and across campus. The bicycle access map area will be a shared facility zone in which pedestrians and cyclists use the same pathways. Beyond this area, a set of pathways will be dedicated for new on-street bike lanes, signage, and shared roadway improvements (see the adjacent map). In addition to these routes, the plan recommends that an off-road shared path be extended along Alexander Street to connect the main campus to the new administrative neighborhood on Canal Points Boulevard. This plan is being implemented by West Windsor Township. Supplementing the bike racks at major campus buildings, two bike centers are recommended for additional security, storage capacity, and minor maintenance. One facility would be on the west side of campus, in the vicinity of the new Dinky station. A second would be incorporated into the new parking facility on the east side of campus.

Cyclist on campus walkway

Working with the borough and township, the University will identify desirable bike routes within the immediate vicinity of the campus.

Conflictions, transit, and pedestrian movements exacerbate congestion at a heavily used intersection.
Shuttles and Transit

Improving transportation options to promote accessibility and support regional connectivity

Shuttles

Although some parking facilities are close to campus destinations, many (including Lot 7 garage and Lot 21) require shuttle service since they lie beyond a comfortable walking distance. The first shuttle route (the Orange Line) was instituted in 1989. It runs along Elm Drive, transporting commuters from Lot 16 and the Lot 7 garage to the Core Campus. Two additional routes were instituted in 2003. The Blue Line primarily serves Lot 21, and the Green Line serves the graduate housing areas. Riderhip on the three lines has increased steadily since the program’s inception. The Campus Plan recommends a revamped shuttle program to create a unified transit system that will respond to the changing distribution of campus facilities over time.

Approach and analysis

As part of a study to improve shuttle service and respond to anticipated campus growth, the planning team facilitated focus groups of shuttle riders and community residents to solicit feedback about the existing service. In light of the steady increase in ridership, many users, especially graduate students, requested greater frequency and connectivity to different quadrants of campus and to off-campus destinations, such as shopping areas. Community residents voiced concerns about shuttle routes along residential streets—especially William Street and Prospect Avenue—and the size of the vehicles. Also, in order to allow off-campus staff at an administrative building along Canal Pointe Boulevard to get back and forth to the main campus, additional shuttle service will be necessary, possibly in collaboration with the Princeton Theological Seminary.

Proposed routes

Starting in 2008, the campus shuttle system will be developed into a more comprehensive and user-friendly set of routes serving the Core Campus and new growth areas, the daily campus community, and the visitor population. Based on feedback from the focus groups, new routes will be diverted away from residential streets where possible and onto campus and commercial thoroughfares. As a case in point, routes will be redirected off William Street to Nassau Street. Improved service will reduce travel time and increase signage and accessibility. Four new shuttle routes will allow passengers to access all parts of campus (see the adjacent 2008 shuttle routes map). New shuttle stops, maps, and logo designs will create a consistent and identifiable image for the new campus transit system. With small adjustments, these routes will accommodate campus growth over the next ten years to serve a new Dinky station and the proposed new parking facility east of Washington Road (see the adjacent map of potential 2016 routes).

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Transit

Like many small towns, Princeton lacks an extensive public transit system. As the most heavily used form of public transit in the region, the existing New Jersey Transit Dinky line is a crucial service for the campus and surrounding...