

Downtown East Redevelopment

Prepared by James Graef
For use by the State College Borough

Table of Contents

Plan Impetus	3
Regional Growth	3
Pressure for Walkability	3
Transportation	6
Street Network	6
Pedestrian Corridors	6
Transit Circulation	6
Bike & Shared Use Paths	10
Vehicle Circulation	10
Football Traffic and Parking	11
Street Design	14
Land Use	20
Zoning Plan	20
Affordability	20
Anchor Institutions	20
Corridor Building Uses	21
Cluster Building Uses	27
Building Parking Garages	29
Building Heights & Step-backs	29
Open Space and Views	34
Phasing	34
Implementation	36

Plan Impetus

Regional Growth

Downtown State College and Penn State University are growing. To accommodate this growth, residential and commercial rental stock must grow to accommodate higher demand, or prices will rise to compensate.^{1 2 3 4}

There are three ways to increase supply of rental units:

- Expand the outer boundaries of the region, encouraging sprawl, straining the environment, and creating places fewer people want to inhabit.
- Expand the existing downtown with more density on existing lots. This is happening now and should continue, especially on underutilized lots. However, backlash over concerns of historic preservation and tearing down less dense existing housing stock inevitably slow this process.
- Expand downtown with dense, mixed use development in new areas which

can be easily served by transit. University buildings to the northwest, the West End mixed use neighborhood to the southwest and single-family neighborhoods to the south and east constrain downtown State College's expansion to its Eastern Gateway, focused on the intersection of University Dr and College Ave. Downtown expansion in this area is explored in this plan.

Pressure for Walkability

Downtown State College is most pedestrian friendly at its central core, near Allen St and College Ave. Atherton St cuts through an otherwise walkable grid to the southwest. To the northeast past Garner St, apartment buildings with few shops and narrow sidewalks make walking less interesting and less safe. Pedestrians are actively excluded at the intersection of College Ave and University Dr, with highway interchange ramps, no sidewalks, and 'no pedestrian' signs. This plan addresses all four of Jeff Speck's aspects of walkability⁵ in the study area and

indirectly in the northeastern portion of downtown State College as it is redeveloped:

- A Safe Walk: This plan advocates for narrow, slow streets for cars and a focus on pedestrian and cycling infrastructure.
- A Useful Walk: This plan creates a destination at the edge of the existing downtown, allowing for more investment in underutilized properties between the new destination and the existing downtown core.
- An Interesting Walk: This plan encourages mixed use development, mandating retail storefronts on primary streets and tall, windowed first floors on all buildings, ensuring interesting street facades.
- A Comfortable Walk: As this plan is implemented, smaller clusters of urban development create continuous street walls which will eventually be connected into the full plan's street walls, creating inviting 'outdoor rooms.'

¹ Smith, Noah. "The Cure for Costly Housing is More Costly Housing." Bloomberg View, Bloomberg L.P., 7 December 2016.

² Smith, Noah. "The NIMBY Challenge." Noahpinion, Noahpinion, 20 May 2017.

³ Cortright, Joe. "How Luxury Housing Becomes Affordable." City Commentary, City Observatory, 31 July 2017.

⁴ Levy, Alon. "Zoning and Market Pricing of Housing." Pedestrian Observations, Pedestrian Observations, 17 August 2014.

⁵ Speck, Jeff. Walkable City: How Downtown Can Save America One Step at a Time. New York: North Point Press, 2012.

MAP 1: EXISTING SITE



1 inch = 400 ft

**MAP 2: EXISTING STREETS
WITH PROPOSED STREETS
OVERLAID**



Transportation

Street Network

The majority of the street layout is based on the site's existing grid made by Hastings Rd and parking lot access streets. This allows for the project to be implemented in phases while the existing buildings and street grid continue to function. The streets toward the edges of the project area are influenced by the surrounding street patterns. For instance, Bigler Rd is extended to meet University Dr, and new streets running parallel and perpendicular to Bigler Rd create a smaller gridded 'neighborhood.' College Ave and the future Nittany Lion Way⁶ are extended into the site to allow for efficient transit circulation through the center of the project area.

Pedestrian Corridors

Penn State's existing campus is crisscrossed by a grid of greenways—like streets but with green space rather than space for vehicles—which allow for efficient pedestrian circulation. The project incorporates these greenways in the new street grid and extends the new greenways to meet existing park infrastructure.

The College Ave extension splits the site between downtown and campus, in a similar way as it does for the majority of the existing boundary between downtown and campus. However, the new boundary is less abrupt than the existing College Ave, because the grid of downtown extends into campus more directly than it does at other points in the interface and the greenways of campus are extended into the downtown grid to create much-needed open space for pedestrians downtown.

Transit Circulation

Currently, most CATA bus routes traveling through the site use University Dr and College Ave. These roads move buses quickly but have few destinations which are consistent ridership generators. University Dr is also too far from stadium parking lots for these buses to offer convenient shuttle service to campus. The Blue Loop acts as the local service in this area, traveling through the stadium parking lots with the Green and Red Links, then traveling to the buildings and parking lots near Hastings Rd. Though this route provides slightly more ridership generators than University Dr, it requires a longer route

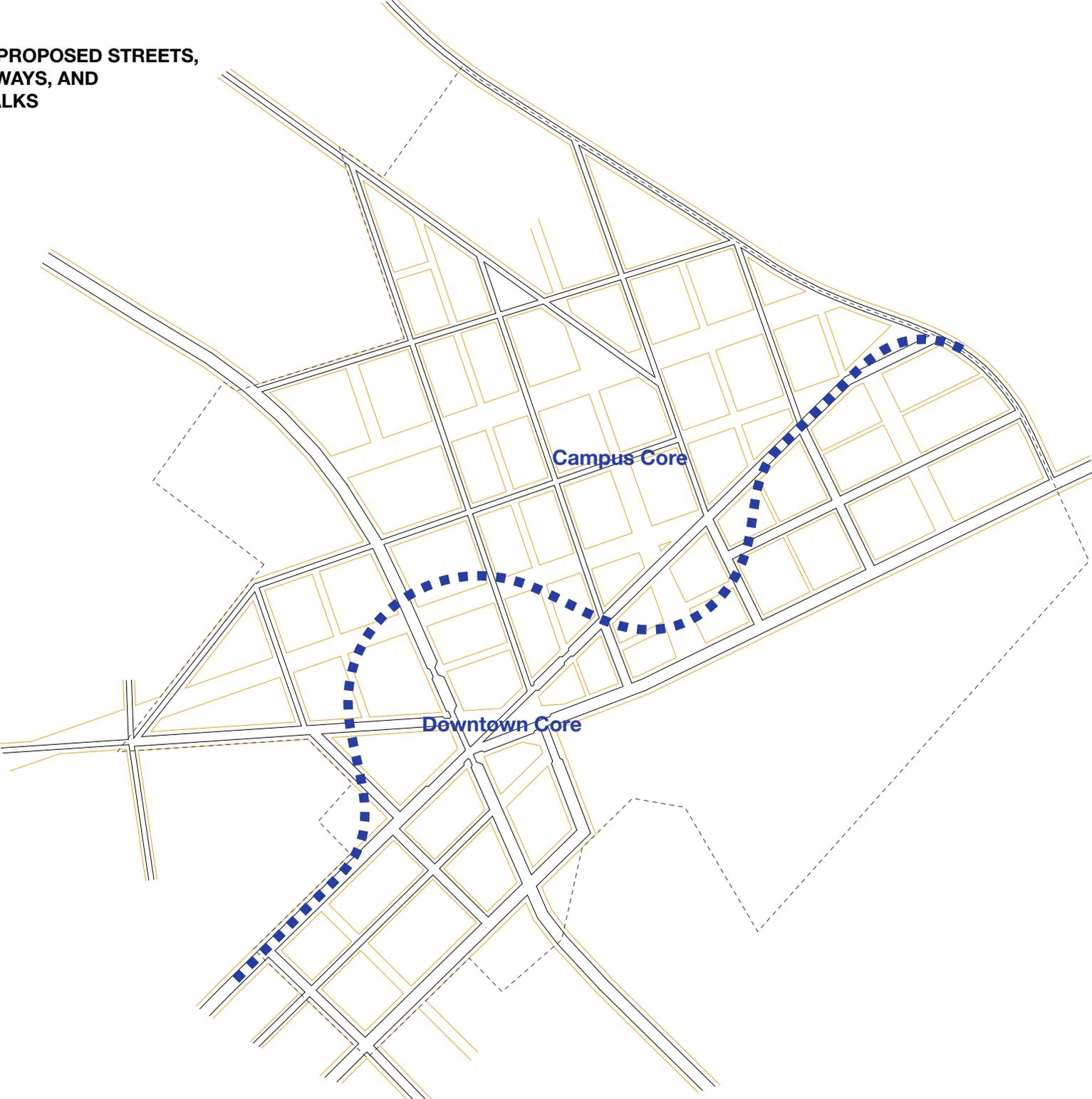
through Porter Rd and requires significantly more turns.

The new street grid accommodates a transit spine through its core. This direct route through the site is more direct than the Blue Loop's route and will serve more destinations when the proposed development is complete. This spine serves the stadium parking lots just as well as current Loop and Link service does, with stops on the Bryce Jordan Center side of the parking lots. Additionally, service on this side of the lots means riders no longer need to walk away from campus to access buses traveling toward it.

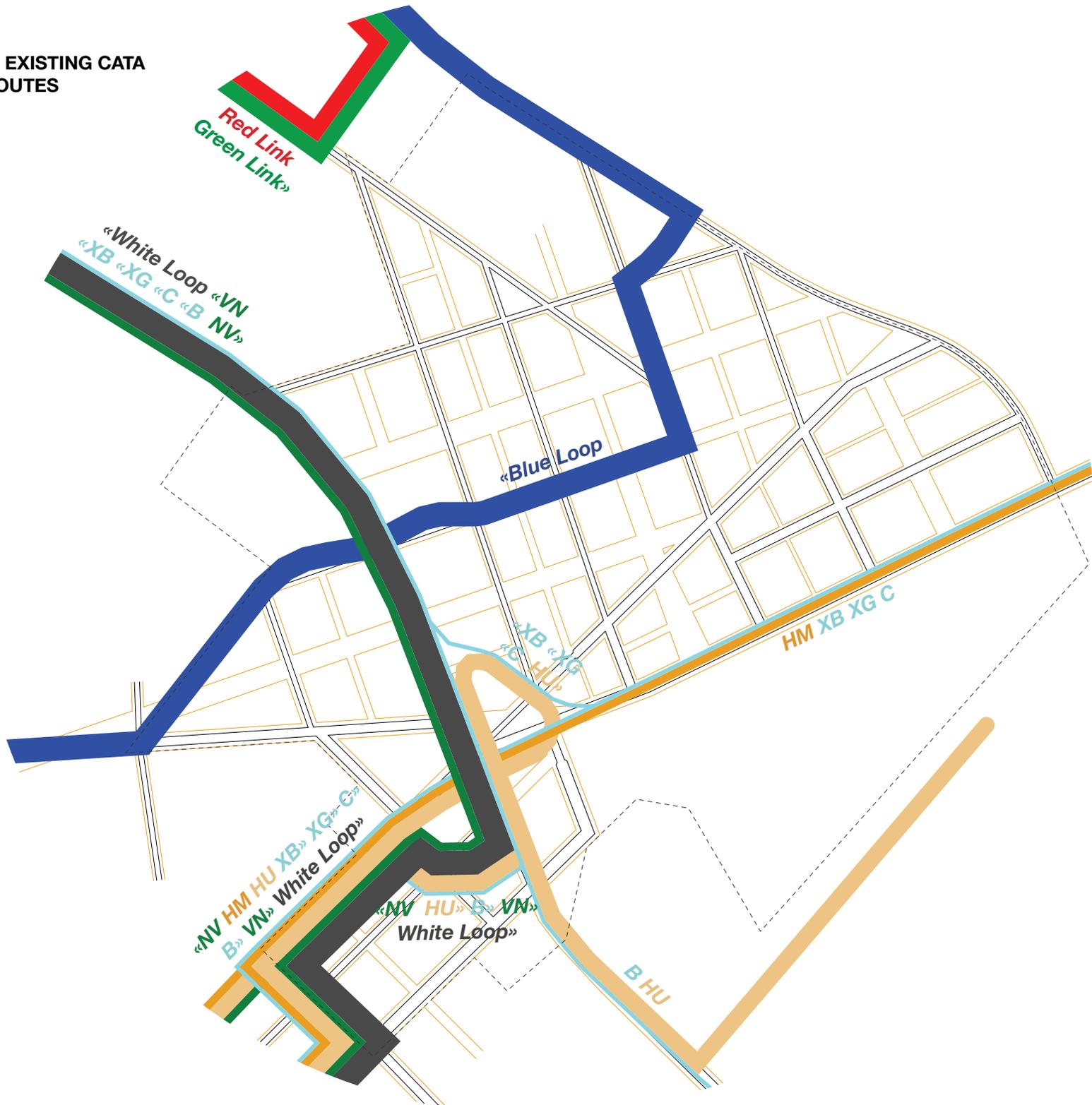
Buses accessing the new transit spine from the east via College Ave must travel through the project area from College Ave at Pollock Rd to the transit spine at the College Ave extension. There are stops at both of these corners and none in between, so buses could travel on different routes in each direction without confusing riders. Buses leaving the transit spine from downtown could continue on the College Ave extension until Pollock Rd where they would turn right, then left at College Ave. Inbound buses on College Ave heading northwest on the spine could continue straight on College Ave, then turn right two blocks past Pollock

⁶ Populous. "Penn State University Athletics Facilities Master Plan." Penn State University Athletics, February 2017.

**MAP 3: PROPOSED STREETS,
GREENWAYS, AND
SIDEWALKS**



MAP 4: EXISTING CATA
BUS ROUTES



Rd and continue straight to reach the transit spine. This arrangement minimizes the amount of turns, especially left turns, necessary for service. However, CATA should study any potential negatives associated with splitting the route, and should not split the route if they plan for a stop along the potential split.

Future Transit Upgrades

With the development of the project area and the shared use path connections to Bellaire Ave through Thompson Spring Park discussed in the next section, the apartments served by the HU route could travel to the new transit spine for more frequent Blue and White Loop service instead. The new Loop stops would be about a quarter mile away from Bellaire Ave which is the radius riders are generally willing to walk to frequent bus service.⁷ HU riders already use White Loop service from the Meridian stop—farther away than the new stops would be—on evenings, nights, and weekends when the HU bus does not run, and during the day because of lower HU frequency. This plan allows HU riders to access bidirectional, free Loop service closer to their apartments. Some existing HU service could be transferred to Loop or HM route service, increasing frequency.

Simultaneously, CATA should investigate ways to encourage or obligate new and existing apartments downtown and on Bellaire Ave to help fund CATA capital expenses and ongoing Loop service, respectively.

The new transit spine allows the Blue and White Loop routes to operate bidirectionally within the project site. This change will make the Loops significantly closer to full bidirectional loops. CATA should investigate simplifying other parts of the Loop routes to run bidirectionally. For example, College Ave in the existing downtown could be a bidirectional transitway and Beaver Ave could be for bidirectional mixed vehicular travel.

Green Link service and the Red Link detour to the stadium parking lots is no longer necessary with bidirectional Loop service. Existing Green Link service could be transferred to Loop or Red Link service to increase frequency and capacity more directly than it does as a separate route.

Bike & Shared Use Paths

A grid of bike infrastructure accompanies the new street network. Bike infrastructure is spaced generally on every second or third street or greenway to concentrate riders,

increasing safety. Greenways are used as bike routes as much as possible, providing safe and pleasant cycling space. Shared use paths encircle the development on sides bordering open space, including College Ave and Pollock Rd. The remainder of the bike grid and circle around the site are generally provided by protected bike lanes.

The grid connects to existing campus and downtown bike infrastructure via Bigler Rd and Calder Alley. Due to lower traffic volumes, constrained street widths, and steep hills, most bike infrastructure in the already-developed areas of campus and downtown can be bike-friendly streets and uphill protected bike lanes. Shared use paths through Thompson Spring Park provide recreation paths and connections between the project area and existing apartments along Bellaire Ave. These paths should be as direct as possible to allow for fast movement between the two developments. They should also be lit at night to increase perceived safety and reliability.

Vehicle Circulation

Existing roads on the edges of the project site are currently at or below capacity, so these streets are maintained as the main vehicle circulation routes of the development.

⁷ Walker, Jarrett. “Basics: The Spacing of Stops and Stations.” Human Transit, Jarrett Walker and Associates, 5 November 2010.

These roads should be altered to increase walkability and to reflect existing traffic levels.

The highway-style interchange of University Dr and College Ave was created before I99 and Park Ave brought cars to campus from the north. Today, it is significantly under capacity. A simple four way controlled intersection would work well with current and future vehicle levels. College Ave is four and five lanes in this area, but has daily traffic volumes of 16,000 cars; easily served by a three lane street.⁸ University Dr currently has three lanes and has traffic volumes of less than 14,000. This plan narrows it to two lanes.⁹

Any congestion created by fewer lanes would discourage the use of University Dr by other potential drivers, leading to no increase in overall congestion. This is the corollary of induced demand, a principle which states any increase in road capacity will result in more driving and the same congestion level as before the capacity increase.¹⁰

Increasing street space for alternate modes of travel is a much more efficient solution for increasing the capacity of a street to move more people. University Dr would gain protected bike facilities and wider sidewalks from the removal of one mixed-traffic lane.

Football Traffic and Parking

Planning for an event which occurs only seven days each year should not justify the highway-like College Ave entering downtown State College or a highway interchange at the intersection of University Dr and College Ave which could otherwise be handled by a traffic light. People attending Penn State Football games expect traffic, and some traffic on gameday because of a new walkable set of neighborhoods should be considered a good tradeoff.

Moreover, the Penn State Football parking plan shows Porter Rd as the main access to lots in the South Zone.¹¹ Porter Rd sees few changes in this plan, meaning there should be

limited traffic impacts. The majority of parking in the Hastings Rd area is not used for football parking,¹² but all parking lots lost due to the development are amply replaced by parking decks, discussed in the Land Use section of this report.

With significantly more dense, walkable campus and downtown development significantly closer to the stadiums, it might be possible to encourage football fans to picnic in green spaces or dine at restaurants rather than tailgating. This transition could reduce football traffic especially near the stadium, would support local businesses rather than grocery store chains, and would significantly decrease the environmental impact of football games.

⁸ Federal Highway Administration. "Road Diet Informational Guide." United States Department of Transportation, 1 April 2019.

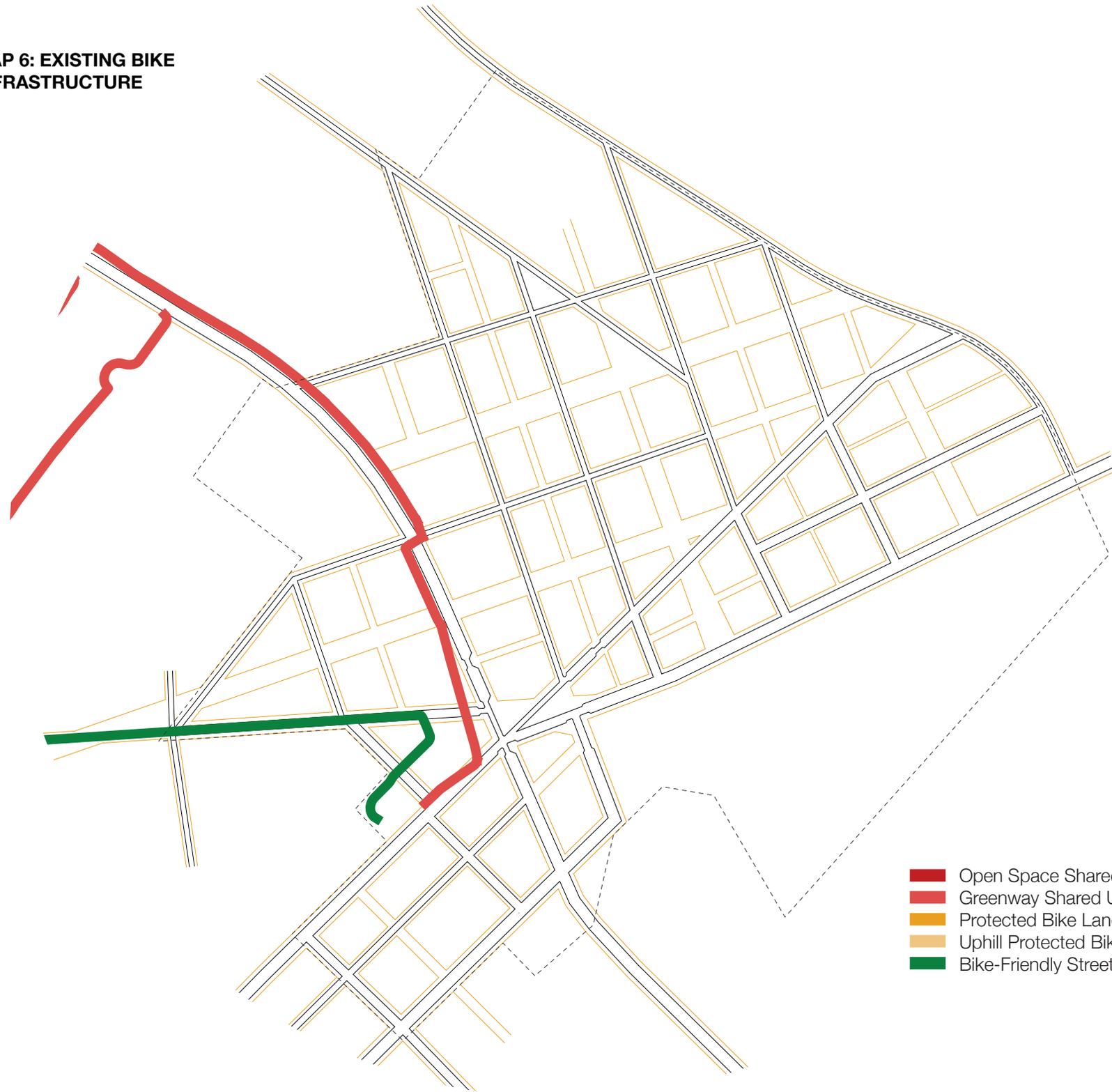
⁹ Romana, Manuel and Hernando, David. "Obtaining a Maximum AADT Sustained by Two-Lane Roads: an Application to the Madrid Region in Spain." *Transportation Research Procedia*, Elsevier B.V., 18 April 2016.

¹⁰ Litman, Todd. "Generated Traffic and Induced Travel." Victoria Transport Policy Institute, 18 July 2017.

¹¹ Campus Map. "South Zone Route." Penn State University, 2019.

¹² Campus Map. "2019 Penn State Football." Penn State University, 2019.

**MAP 6: EXISTING BIKE
INFRASTRUCTURE**



- Open Space Shared Use Path
- Greenway Shared Use Path
- Protected Bike Lanes
- Uphill Protected Bike Lane
- Bike-Friendly Street

MAP 7: PROPOSED BIKE INFRASTRUCTURE



- Open Space Shared Use Path
- Greenway Shared Use Path
- Protected Bike Lanes
- Uphill Protected Bike Lane
- Bike-Friendly Street

Street Design

The intersection of University Dr and College Ave is the most complex area of the project, with six converging road approaches. The intersection and its immediate surroundings have been detailed here, and concepts from this intersection would be applied to all other areas of the project.

The intersection is normalized by focusing on four approaches: the two composing University Dr and the two composing the existing College Ave. These two roads create a generally normal four way, traffic light-controlled intersection. The College Ave extension would be transit-only—at least within the block approaching the University Dr and College Ave intersection—so it can have a separate transit signal conforming to the almost-parallel College Ave approach. The sixth approach, Bigler Rd, is foreshortened to University Dr to simplify the rest of the intersection. Left turns from University Dr onto Bigler Rd might be prohibited to keep traffic moving out of the intersection.

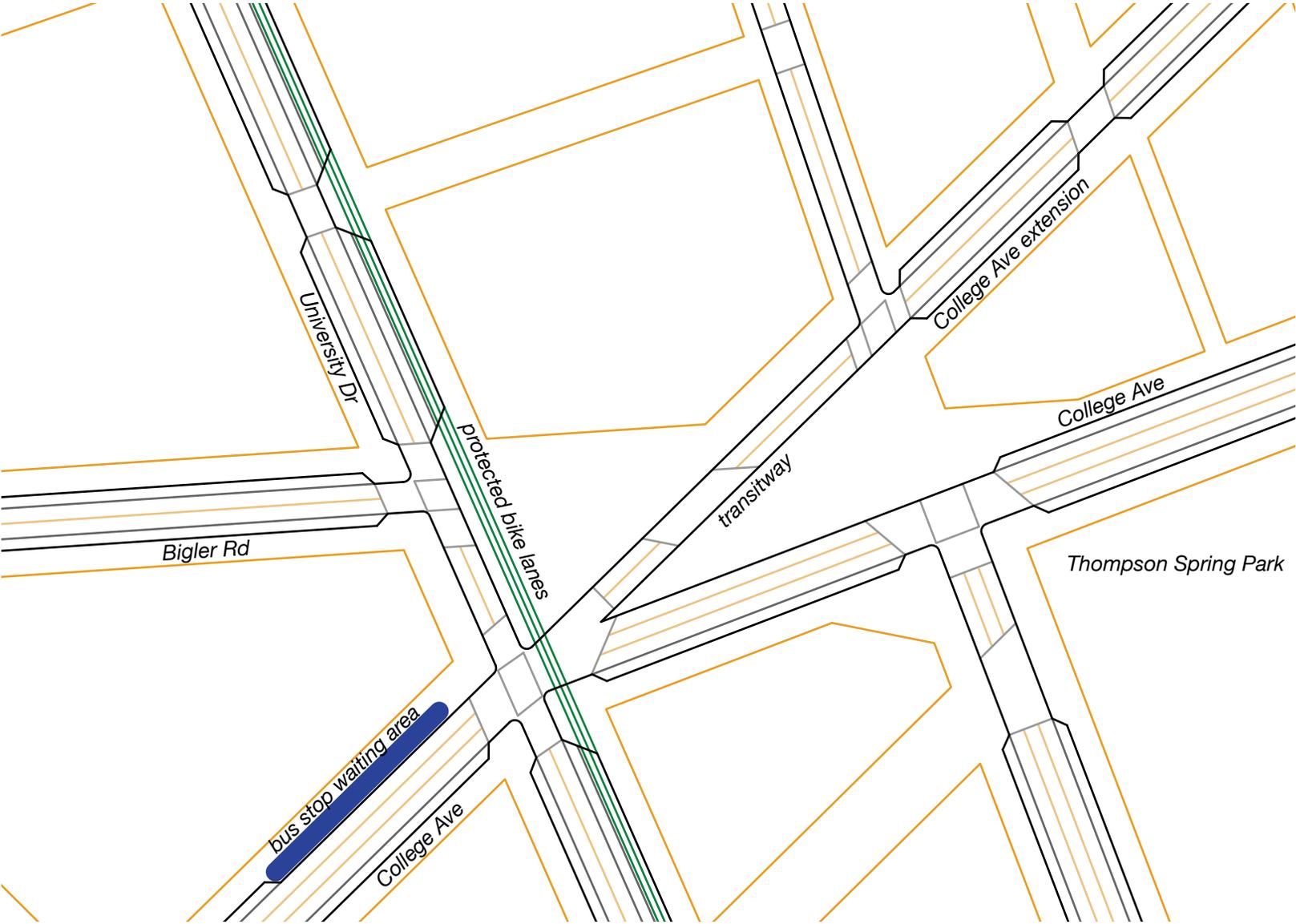
Most streets are two-lane with two lanes of parallel parking on each side, but there are a few exceptions for main vehicular routes. First, College Ave is three lanes to allow for existing traffic volumes. Second, the street one block to the east of University Dr south of College Ave is three lanes. This allows for future conversion to a primary vehicular connection between College Ave and a bidirectional Beaver Ave if the existing College Ave is transitioned to a bidirectional transitway from University Dr to the existing downtown core.

Travel and parking lane widths are shown as narrow as is feasible: 10 ft wide for travel and 7.5 ft wide for parking. Narrow travel lanes with nearby obstacles like parallel parking and street trees create streets where drivers instinctively drive more slowly, increasing safety.¹³ Additionally, protected bike lanes on University Dr are separated from traffic lanes by parallel parking, increasing real and perceived safety. Buses stop in travel lanes so they do not need to wait to merge back into traffic lanes, and the parallel parking lane becomes a 60-foot long bulb-out at bus stops to be used as a waiting and boarding area.

Sidewalks are generally 17 feet wide on primary streets and 12 feet wide on secondary streets; the high and low ends, respectively, of generally accepted small-downtown sidewalk widths. Crosswalks are at least as wide as the sidewalk they extend from, and bulb outs when parallel parking ends at intersections shorten crossing distances. All corners of all intersections are connected by sidewalks, including greenways, which generally have wide sidewalks continuing their width across intersecting roads.

¹³ [Petritsch, Theodore. "The Influence of Lane Widths on Safety and Capacity: A Summary of the Latest Findings." Sprinkle Consulting, Inc., NACTO.](#)

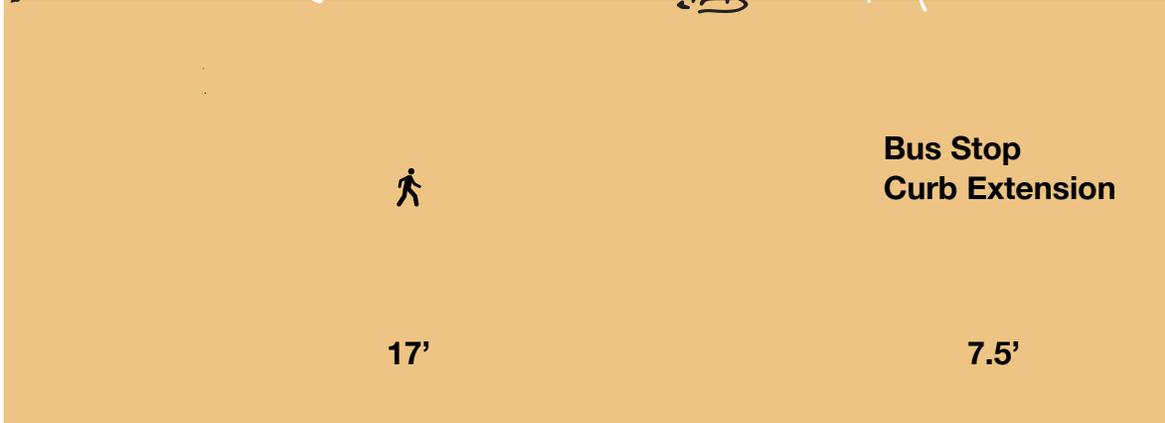
MAP 8: PROPOSED STREET DESIGN INSET



1 inch = 100 ft

College Avenue

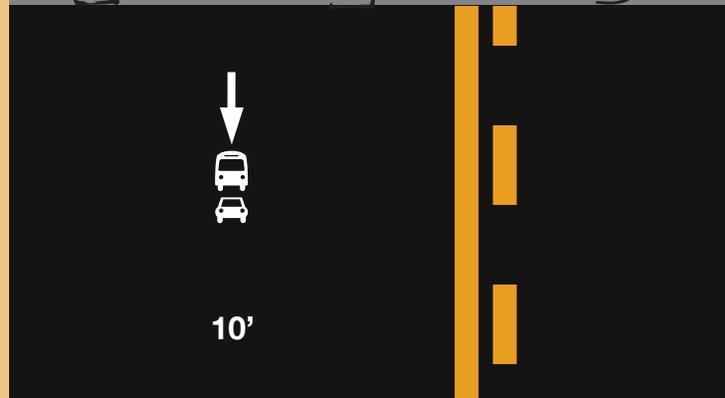
looking toward University Dr



Bus Stop
Curb Extension

17'

7.5'



10'



P



Loading



Seating



10'

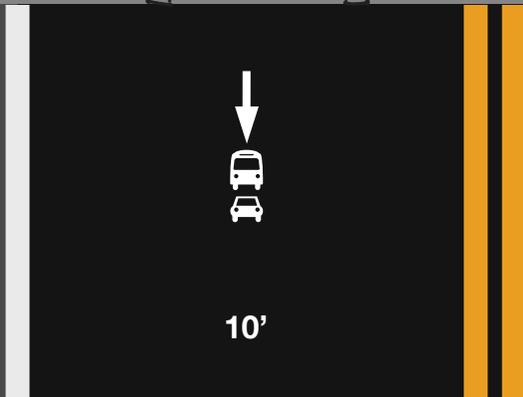
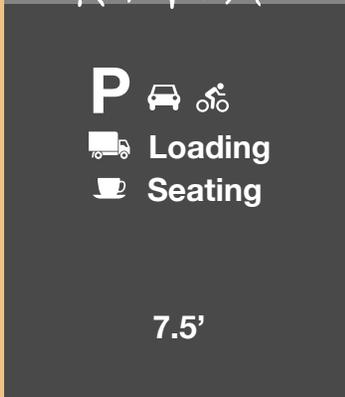
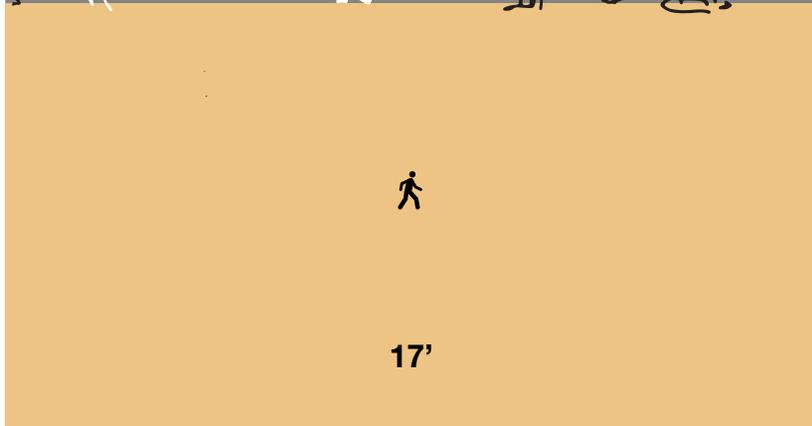
10'

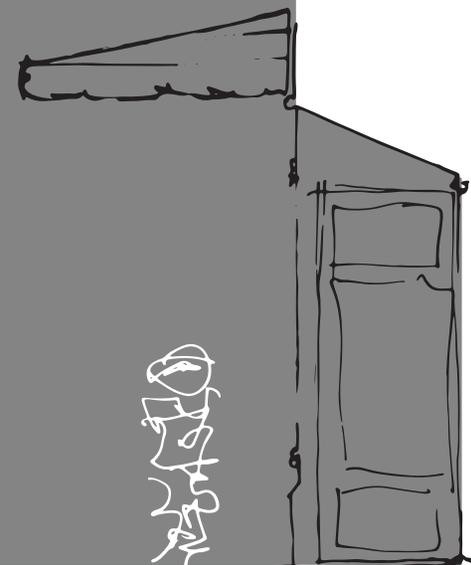
7.5'

17'

University Dr

looking toward College Ave





10'

P



Loading



Seating

7.5'



Barrier

2'



4'



4'



17'

Land Use

Zoning Plan

This plan shows one possibility for how the buildings on this site might function. Ultimately, the specific layouts of buildings will be determined by the developers of each individual building according to zoning requirements.

The plan presented here would be accomplished through multiple layers of zoning requirements. First, three general zoning districts would be adapted from existing districts or created for this site: one would generally allow commercial office development with retail on ground floors, the second would allow residential development above retail, and the third would allow residential, athletics, or academic space for university functions. This third district might be a part of the existing university planned zoning district which blankets the rest of Penn State's campus or might be an adapted version with requirements for urban-type build-to lines and higher density requirements.

Additional overlay districts would provide additional requirements to enforce specific commercial corridors and allow for other uses. Main commercial corridors would have an overlay mandating more retail space—potentially multiple floors. Lots on the edge of the project area would have an overlay allowing uses like parking in specific instances.

Affordability

The amount of new apartment, office, and retail space this plan advocates for might seem excessive, especially because this plan replaces only a few low-density buildings. However, just like any other normal economic good, higher supply of—and steady demand for apartment, office, and retail space will lead to lower prices. Lower prices will allow businesses and residents to move to an urban location they might not have been able to afford otherwise and will allow more local businesses to afford retail rents downtown. This project also allows for significant expansion of Penn State programs away from central campus without encouraging more suburban-style development like that of Innovation Park or the Science Park corridor.

Although the most price-sensitive renters will likely not be able to afford the rents of these new buildings, the

increase in supply will decrease the rent of spaces across downtown State College. Additionally, this area designed specifically for new downtown construction will reduce pressure to redevelop other parts of downtown, leading to less displacement of residents and businesses currently located in older, lower-density buildings downtown.¹⁴ As this development ages and new developments increase the supply of more expensive space in the future, the buildings created in this plan will serve as the low-cost units for price-sensitive renters.

Of course, inclusionary zoning should be used to provide below-market rate housing in buildings in addition to more market rate housing. Additionally, the elimination of parking minimums or even establishment of parking maximums should significantly decrease apartment rents due to underground parking's high cost of construction.

Anchor Institutions

With the correct infrastructure and zoning changes, this development will slowly grow as an extension of downtown State College. With institutional anchors, however, the area can develop more individual character and can be expanded faster than it

¹⁴ Governing. "How Miami Tough Gentrification and Won (for Now)." e.Republic, July 2015.

would otherwise be. Multiple institutions could provide an anchor for all or part of the site:

- The museum complex and cultural center proposed for the Arboretum would be better suited to an urban site with good transit access near research and learning spaces in related study areas. Additionally, these museums would be able to generate traffic for adjacent retail, rather than being isolated near the Arboretum.
- A hospital as an outpost to—and future expansion for Mount Nittany Medical Center could eventually become a significant hospital complex. Its urban location would allow for significantly better transit access than Mount Nittany Medical Center for patients who are disproportionately unable to drive and would allow patients and staff to use urban amenities like restaurants and parks. Hospital buildings generate significant numbers of high- and low-paying jobs and generate significant traffic at nearby businesses from patients and families.
- A business and innovation hub, situated at the interface between campus and downtown, could generate jobs directly and attract independent businesses generating even more jobs indirectly. This

business activity could encourage young professionals to move to the district in addition to undergraduate students.

- Sports stadiums are an anchor of the entire eastern side of Penn State Campus. Further urban development between this project area and Beaver Stadium along the transit spine could allow the stadiums to act as a northern anchor to the project area. However, these stadiums are only active as anchors during specific events, so they may not be able to generate traffic as reliably as might be necessary.

In addition to district-wide anchors, smaller anchors can act as smaller-scale pedestrian traffic generators for nearby businesses. These anchors can be located at the edges of the site to encourage visitors to explore past the core on streets which would otherwise be dead ends.

- A regional visitor center could replace the existing visitor center on Park Ave—a candidate for removal in the Penn State Athletics Facilities Master Plan.¹⁵ This center could also serve as the information center for the Centre Furnace Mansion and Iron Furnace, which by itself is another small historical anchor.
- Thompson Spring Park is the closest large park to downtown State

College, providing significant recreational opportunities. It can also connect to development on Bellaire Ave, continuing streets which would otherwise be pedestrian dead ends at College Ave. This green space could be a significant amenity for residents looking for urban living near large parks.

- Penn State’s wastewater treatment facility could be expanded and become an environmental innovation center for learning, research, and visitors, newly accessible via the new development and Thompson Spring Park recreational trails

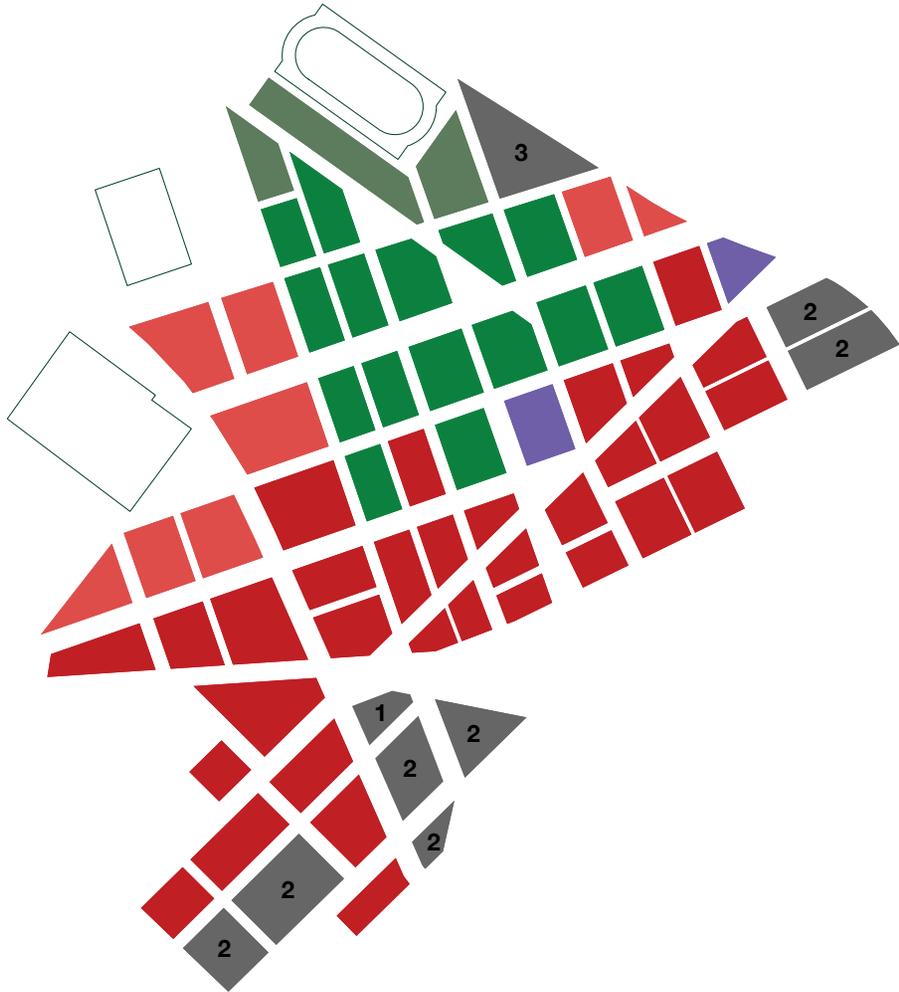
This plan assumes one centrally located institutional building near the development’s core, and one along the edge. Institutional buildings could command a smaller or bigger proportion of the development by replacing space in other buildings throughout the development as required.

Corridor Building Uses

The straight extension of College Ave into the middle of the development serves as the main commercial street anchoring the downtown. It is flanked by retail for most of its length on both sides. Almost all buildings to the southeast, downtown side of the College Ave extension have retail on

¹⁵ Populous. “Penn State University Athletics Facilities Master Plan.” Penn State University Athletics, February 2017.

MAP 9: FIRST FLOOR BUILDING USES



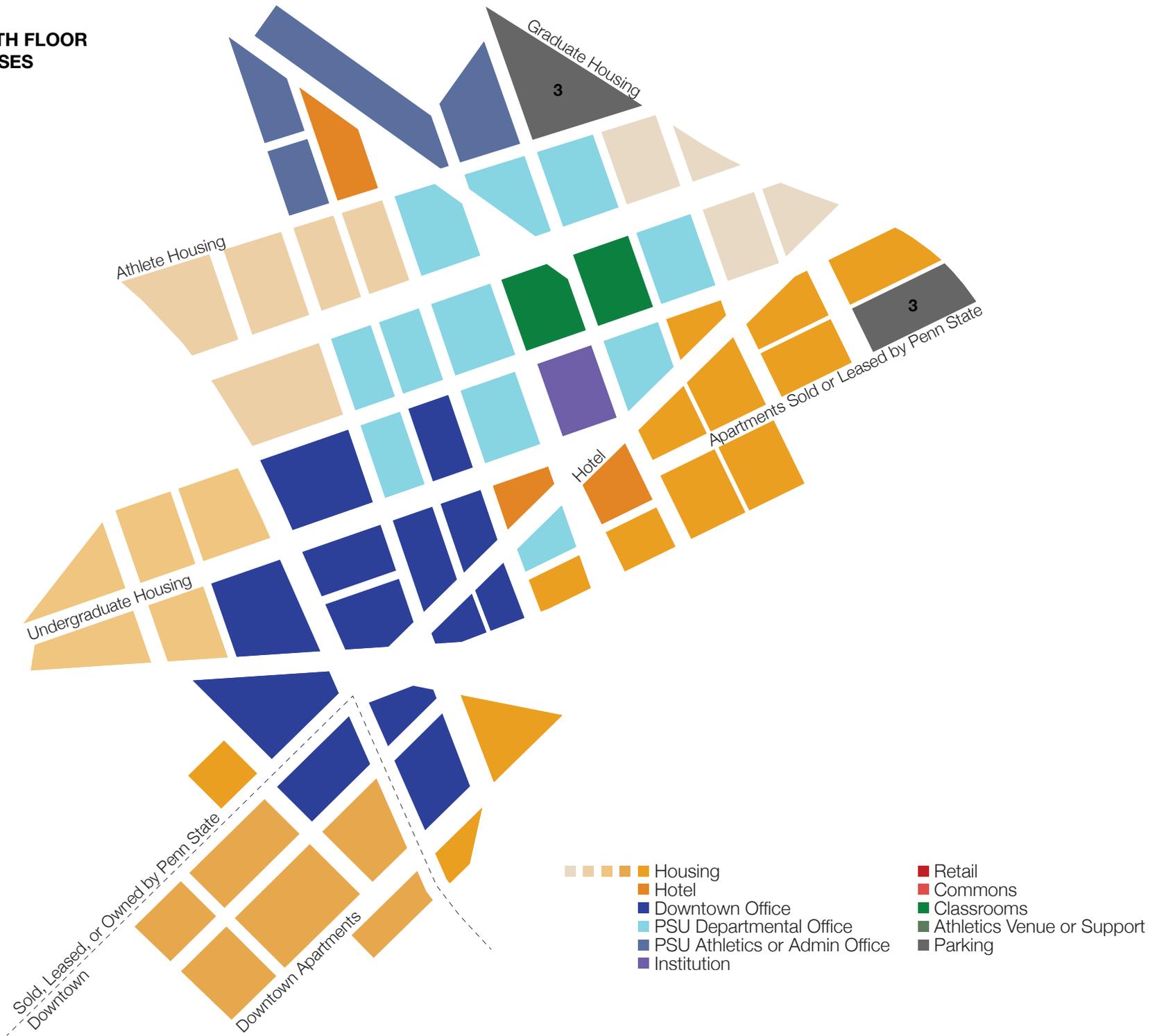
1 underground parking
 2 garage hidden on primary street(s) by topography; potentially hidden by retail on secondary streets
 3 above-ground garage hidden by retail

MAP 10: SECOND FLOOR BUILDING USES



■ Housing	■ Retail
■ Hotel	■ Commons
■ Downtown Office	■ Classrooms
■ PSU Departmental Office	■ Athletics Venue or Support
■ PSU Athletics or Admin Office	■ Parking
■ Institution	

MAP 13: FIFTH FLOOR BUILDING USES



MAP 14: SIXTH TO TENTH FLOOR BUILDING USES



MAP 15: ELEVENTH FLOOR BUILDING USES

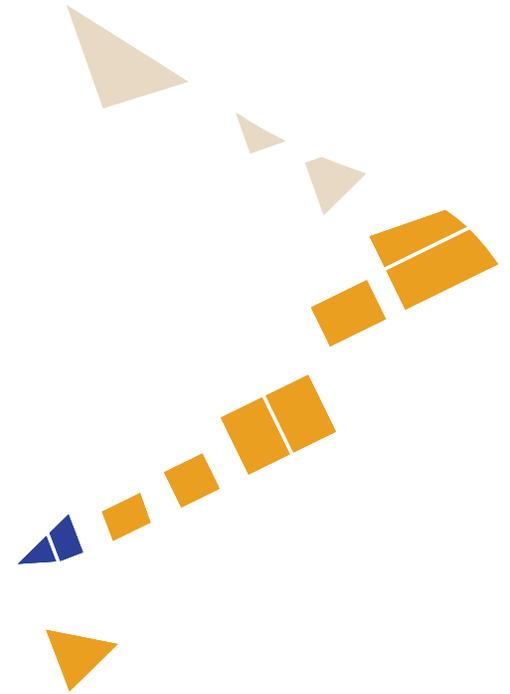


- | | |
|---------------------------------|------------------------------|
| ■ Housing | ■ Retail |
| ■ Hotel | ■ Commons |
| ■ Downtown Office | ■ Classrooms |
| ■ PSU Departmental Office | ■ Athletics Venue or Support |
| ■ PSU Athletics or Admin Office | ■ Parking |
| ■ Institution | |

MAP 16: TWELFTH FLOOR BUILDING USES



MAP 17: THIRTEENTH TO SEVENTEENTH FLOOR BUILDING USES



- | | | | | |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|----------------------------|
|  |  | Housing |  | Retail |
|  |  | Hotel |  | Commons |
|  |  | Downtown Office |  | Classrooms |
|  |  | PSU Departmental Office |  | Athletics Venue or Support |
|  |  | PSU Athletics or Admin Office |  | Parking |
|  | | Institution | | |

their ground floors, as well as some to the northwest on the campus side, especially those on University Dr and Bigler Rd. This retail continues for the first couple levels of many of these buildings, especially those on main commercial streets.

To the northwest of the College Ave extension, most buildings would have classroom and other academic spaces on their ground floor. These classrooms might extend several floors up into the buildings. Other buildings occupied by Penn State would host athletics venue and support spaces, or commons spaces on their ground floors for dorms and residences above. Commons spaces, including food and other services, would be under living spaces instead of in separate buildings as existing residence hall commons spaces are. This increases density and creates more interesting street facades than are created by the lobbies and laundry facilities on the ground floors of existing dorm halls.

Cluster Building Uses

Building uses above the ground floors are split in generally the same way as uses at street level: Penn State facilities occupy buildings to the northwest of the College Ave extension and buildings similar to current

downtown development continue around the College Ave extension and to the southeast. However, these uses are organized in clusters more than by corridor, as the street level uses were, to allow clustering around transit stops.

These clusters form three main district centers, each corresponding to a bus stop along the main transit spine through the site. The first, at University Dr and College Ave, comprises downtown office space not owned by Penn State. These offices might be completely unrelated to Penn State or might be startup incubator-type partnerships. The second district center, where the main transit spine turns off the College Ave extension, comprises mostly academic buildings, and specifically classrooms. The third, at the northern edge of the project area centered on the transit spine, is split between athletic facilities to the north and academic buildings to the south.

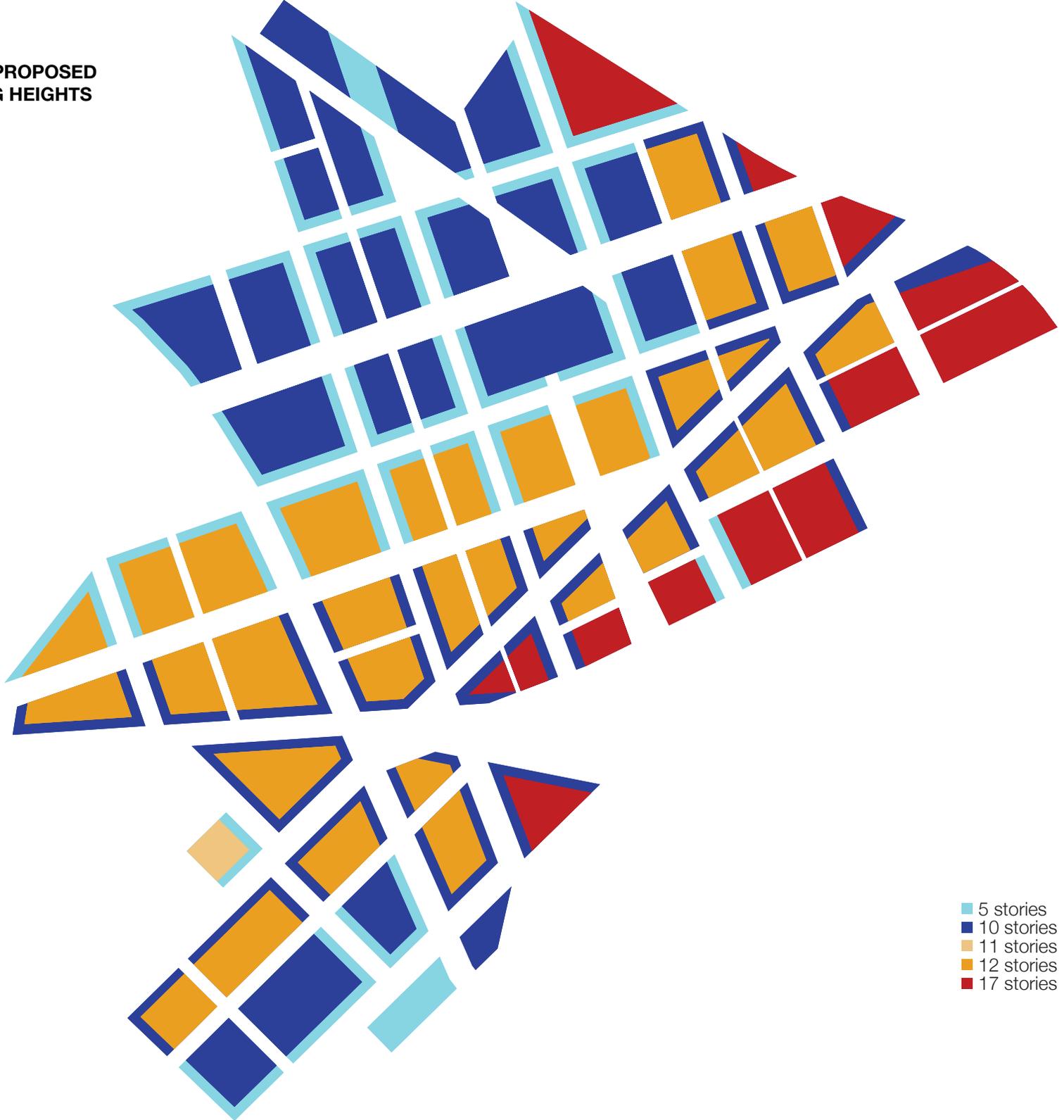
Housing is also located in clusters. Most housing to the southeast of the College Ave extension would be sold or leased by Penn State and by property owners downtown to developers for downtown-style off-campus apartments. To the northwest, Penn State residences would be split into different districts. Near the intersection of Hastings Rd and Bigler Rd, a new

undergraduate dorm cluster would accommodate growth after East Halls and other existing dorm clusters have been densified. Along University Dr and adjacent to athletic fields to the north would be athlete housing which could replace the Nittany Apartments when they are demolished for more dense development. Lastly, graduate student housing would be placed along Porter Rd to offer a more urban living option than the White Course Apartments.

Housing clusters—including Penn State-run dorms and residences and downtown apartments—are generally located away from main district centers and farther from bus stops than offices and academic spaces. This is because office space—more than housing or amenities—near transit is what encourages transit ridership.¹⁶ Residents are generally happy with walking from their house to a bus stop, as long as the bus will take them close to their destination at work. The same is true for college students and school, so any large classrooms built in the project area should be located as close to main bus stops as possible. Additionally, because hospitals and cultural centers generate significant numbers of jobs and visitors, institutional buildings are shown very close to transit stops as well.

¹⁶ Levy, Alon. “When Transit Serves the Poor Better Than the Rich.” Pedestrian Observations, Pedestrian Observations, 28 December 2018.

**MAP 18: PROPOSED
BUILDING HEIGHTS**



- 5 stories
- 10 stories
- 11 stories
- 12 stories
- 17 stories

Building Parking Garages

Some buildings should have integrated parking garages. Some of this parking would be used to make up for the existing parking lots lost to new buildings and the rest would serve as public parking just as parking lots downtown do currently. Parking lots should be allowed below retail floors if certain site conditions are met:

- Sites with multiple sides that have different street elevations
 - This creates multiple ground floors and allows for less costly excavation because most earth-moving can be done laterally rather than vertically
- Sites with one side facing a support road rather than a main commercial street, where garage entrances would be less obtrusive
- Sites which are on the periphery of the project area to leave prime building sites at the center for dense development made for people instead of cars

These garages should have thin retail spaces lining the street on their ground floor or floors to continue interesting street facades for pedestrians. The Beaver Ave Garage downtown shows

how a thin section of retail can activate the street, but this example could be improved by moving the garage entrance to a side street, rather than its current position on Beaver Ave.

The project area and its associated zoning districts should have no parking minimums because State College should not encourage the construction of parking spaces. Surface parking breaks street walls and craters density, and underground parking is incredibly expensive, leading to increased apartment rents.¹⁷ College students and others living downtown have little need for a car and the up to \$10,000 one costs annually for upkeep.¹⁸ Building more parking spaces encourages people to drive to work or to shop, instead of riding a bus or walking, and encourages residents to keep cars they might not need, adding to congestion and its associated negative effects.

Building Heights & Step-backs

This proposal shows the maximum possible footprint of buildings and their step-backs as they relate to building height. Each block might be composed of one single building or multiple

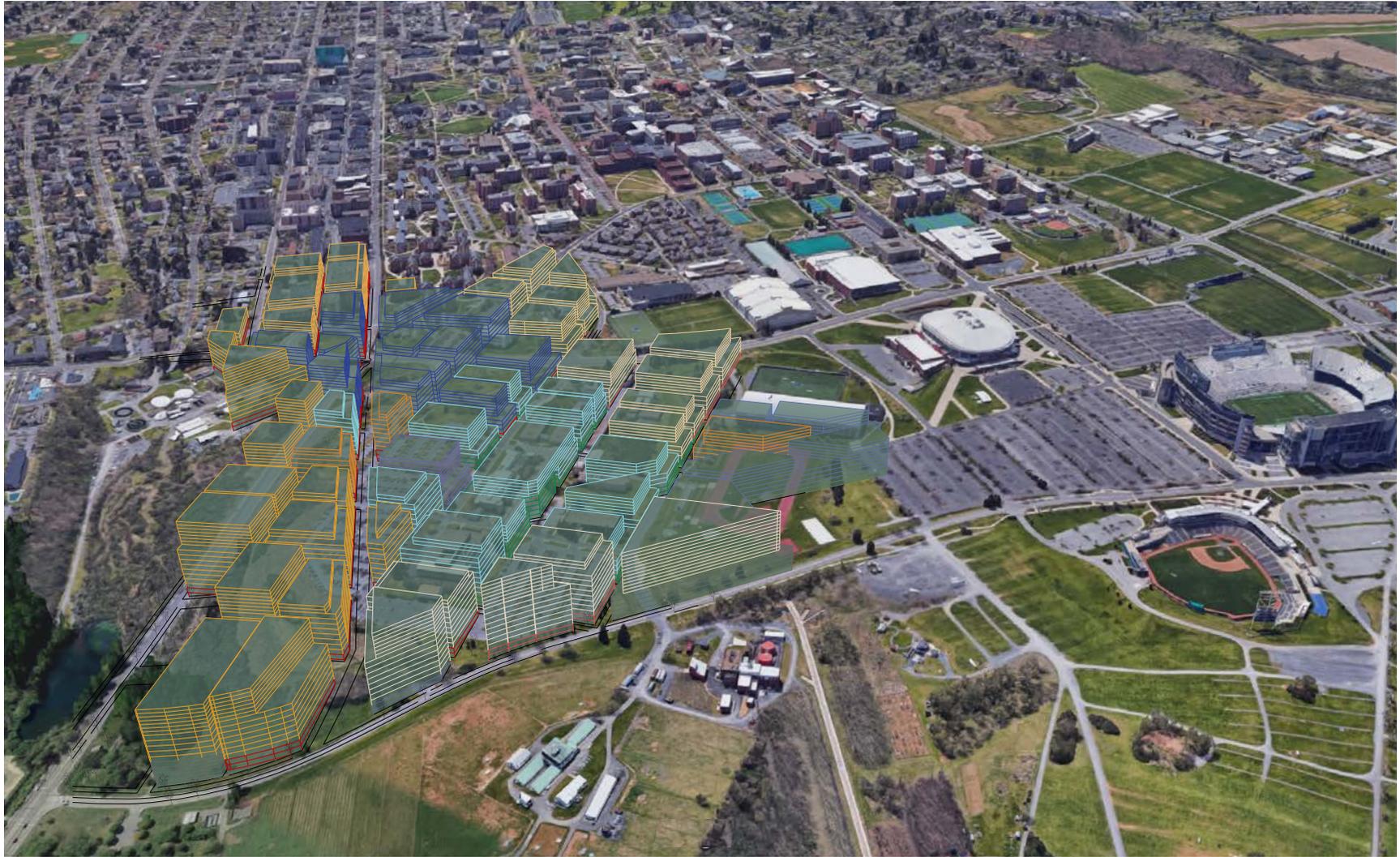
buildings with a continuous street facade. Floor-area ratios (FAR) might be used to further limit the extent of buildings, but higher densities should be encouraged to maximize urban agglomeration effects. Heights of buildings are measured in stories, to ensure buildings have generous retail space on their ground floors, instead of allowing developers to squeeze floors together to maximize total units.

Ground floor building extents would be build-to lines rather than setbacks, to ensure a consistent street facade is maintained. Step-backs, however, are maximum extents and are placed to allow more light into thinner street corridors. Because greenways are generally wider than streets, they have fewer step-backs than streets, encouraging people to experience extremely vertical street spaces, or 'outdoor rooms.'

The same zoning overlays used to establish building types would be able to control building heights as well. Main commercial and academic streets and greenways would have consistent maximum numbers of stories, controlled by corridor overlays. Because greenways generally do not have step-backs, the maximum total

¹⁷ Gabbe, C.J. "Hidden Costs and Deadweight Losses: Bundled Parking and Residential Rents in the Metropolitan United States." *Housing Policy Debate*, Taylor & Francis Online, 21 June 2016.

¹⁸ Stepp, Erin. "Your Driving Costs." *AAA Newsroom*, AAA, 23 August 2017.



VIEW 1: LOOKING WEST TOWARD CAMPUS AND DOWNTOWN ALONG THE COLLEGE AVE EXTENSION. Solids shown are build-to and step-back lines; actual building volumes would be much smaller to allow for natural light penetration and to meet potential maximum floor-area ratio (FAR) values determined in zoning code.

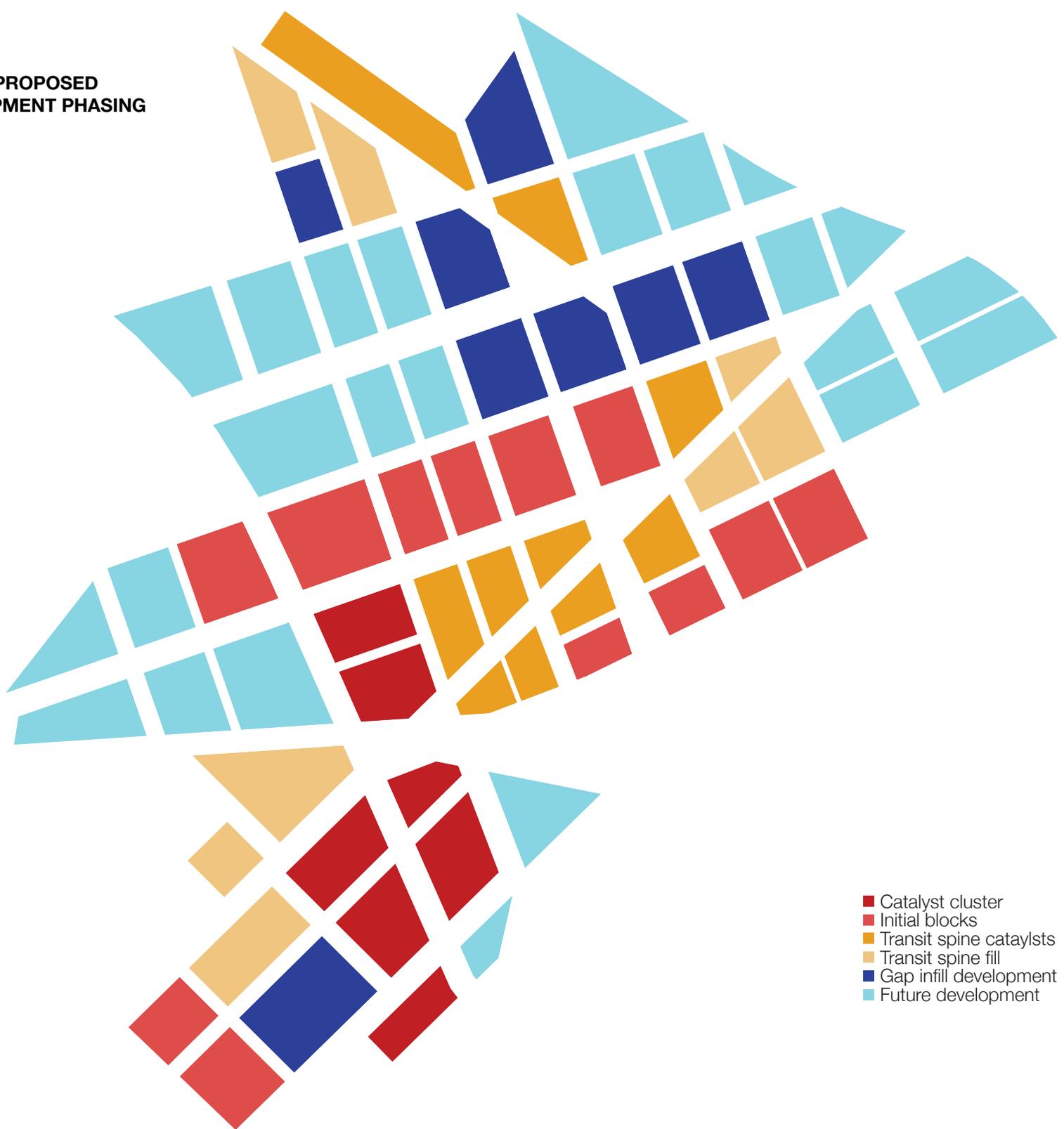


VIEW 2: LOOKING WEST TOWARD CAMPUS ALONG THE EXISTING COLLEGE AVE. Solids shown are build-to and step-back lines; actual building volumes would be much smaller to allow for natural light penetration and to meet potential maximum floor-area ratio (FAR) values determined in zoning code.

**MAP 19: PROPOSED
GREENWAYS, VIEWS,
AND OPEN SPACES**



**MAP 20: PROPOSED
DEVELOPMENT PHASING**



- Catalyst cluster
- Initial blocks
- Transit spine catalysts
- Transit spine fill
- Gap infill development
- Future development

building height is usually determined by an adjacent greenway to maintain a consistent building height along the greenway corridor. In the same way, adjacent streets generally determine the maximum height of the first step-back to create consistent perceived building heights along the street.

Where different corridor rules overlap, the more primary street or greenway generally overrules the other. Heights before the first step-back are generally five stories on campus corridors and ten stories on downtown corridors. Buildings are generally allowed to be a total of ten to 12 stories, similar to zoning regulations in other parts of downtown within the commercial incentive zoning district.¹⁹

Other overlays determine building heights away from the main corridors. An edge overlay would allow for buildings up to 17 stories facing the open space bordering the project area. These taller buildings would allow for increased apartment space with impressive views but would cause fewer problems at street level because the streets would only have buildings on one side. Because the site topography is generally lowest near its edges, these tall buildings blend in with shorter buildings when viewed from farther away.

On the edges of the project area which border existing neighborhoods, transitional overlays would limit building heights to as little as five stories to allow for a smooth transition to lower-rise development.

Open Space and Views

The odd angles of many streets create intersections with adjacent small leftover parcels. These generally triangular lots would turn into squares where people could gather and festivals or markets could be held. The existing downtown of State College has few squares like this, so streets must be closed for even small events. The main square of the project area sits at the northern corner of the intersection of University Dr and College Ave and connects the new downtown to Thompson Spring Park.

Thompson Spring Park would act as the arboretum or Central Park for the project site. Light infrastructure including paths and lighting should be added. This park would be connected to the Centre Furnace Mansion site and the fields beyond Porter Rd by a two-block park at the western corner of College Ave and Porter Rd, which would also house the historic iron furnace near the intersection.

Important greenways and streets would be extended to the edge of the project area to create views of the nature surrounding the site. Users of the College Ave extension would see the fields and forests beyond Porter Rd; users of Bigler Rd would see from the Millennium Sciences Complex to Thompson Spring Park; and users of the main north-south greenway from the relocated outdoor track facility would also see into Thompson Spring Park.

Phasing

The first part of the project to be developed should be the cluster around the College Ave and University Dr intersection. The highway interchange should be removed and replaced by an at-grade intersection with significantly improved pedestrian and bike facilities, and the sale or lease of land previously used by the interchange ramps can pay for the road and bridge demolition and rebuilding.

Next, lots along existing roads, including College Ave and Hastings Rd, could be developed without significant costs associated with infrastructure. These buildings would provide the density to support the future transit spine. The pedestrian-unfriendly buildings between High St and

¹⁹ State College Borough. "State College Borough Code of Ordinances Article XXII CID Commercial Incentive District." State College Borough, 6 August 2007.

University Dr would also begin to be replaced at this time by more appropriately urban buildings, beginning to connect the site with the rest of downtown.

Third, buildings which line the transit spine would be built and infrastructure for the transit spine and perpendicular streets would be created. Fourth, the transit spine would slowly be expanded to create full urban districts.

Fifth, existing buildings which previously fit into the new street grid would be replaced to increase density. Lastly, the area would slowly expand away from the transit spine to the edge of the project site.

Implementation

		Implementation Timeline	Cost
State College Borough	Add removal of interchange at College Ave and University Dr to LRTP and TIP	Immediate	NA
	Sell lots bought from PennDOT for development	After removal of College Ave and University Dr interchange	NA
State College Borough and College Township	Add future streets to official map	Immediate	NA
	Add road diets on College Ave and University Dr to LRTP and TIP	Immediate	NA
	Update zoning regulations to allow for this development	Immediate	NA
Penn State University	Develop a master plan for use of future buildings in the area	Immediate	Low
	Sell or lease apartment and office lots for development by others	After removal of College Ave and University Dr interchange	Provides revenue
	Construct roads for future development	During and after initial development on Hastings Rd and College Ave	High, offset by sale or leasing of land
PennDOT	Remove interchange at College Ave and University Dr and replace with traffic light-controlled intersection	Immediate	High, offset by sale of land
	Sell land from interchange to State College Borough, Penn State University, or developers	After removal of College Ave and University Dr interchange	Provides revenue
	Implement road diets on College Ave and University Dr	After removal of College Ave and University Dr interchange	Medium
CATA	Interface with municipal governments, PennDOT, and Penn State to improve existing and future bus stops with on-street and in-building shelters, bus bump outs, and lighting	Ongoing	NA
	Develop plans to shift bus services to transit spine	As development around transit spine occurs	Low
	Implement future route improvements including on HU and Loop and Link services	After development of transit spine	Low

