

Transportation Framework

The following recommendations incorporate community engagement feedback and refine the transportation priorities defined in planokc as they relate specifically to the study area.

Enhanced Highway Crossings

Today, I-235 functions as a significant barrier that separates the study area from downtown and Automobile Alley. The existing crossings are auto-oriented and unsafe or unpleasant for pedestrian and cyclists. Each underpass or overpass connection should get basic upgrades to add better sidewalks and streetscapes. Special attention should be paid to 10th Street crossing over I-235 as an opportunity to connect to the Innovation District.

There are several ways to reduce the negative impact of this significant barrier, such as :

- Increasing the size of the sidewalks for pedestrians and adding bike lanes can make it safer for people walking and biking.
- Place buildings as close to the edge of the highway as possible to make the walk across the bridge look and feel shorter.
- Add amenities such as shade trees and seating to make the walk more comfortable. Add art, sculpture or interesting pavement and furnishings to provide visual interest along the walk.



Proposed expansion of 10th Street bridge.

A Network of Complete Streets

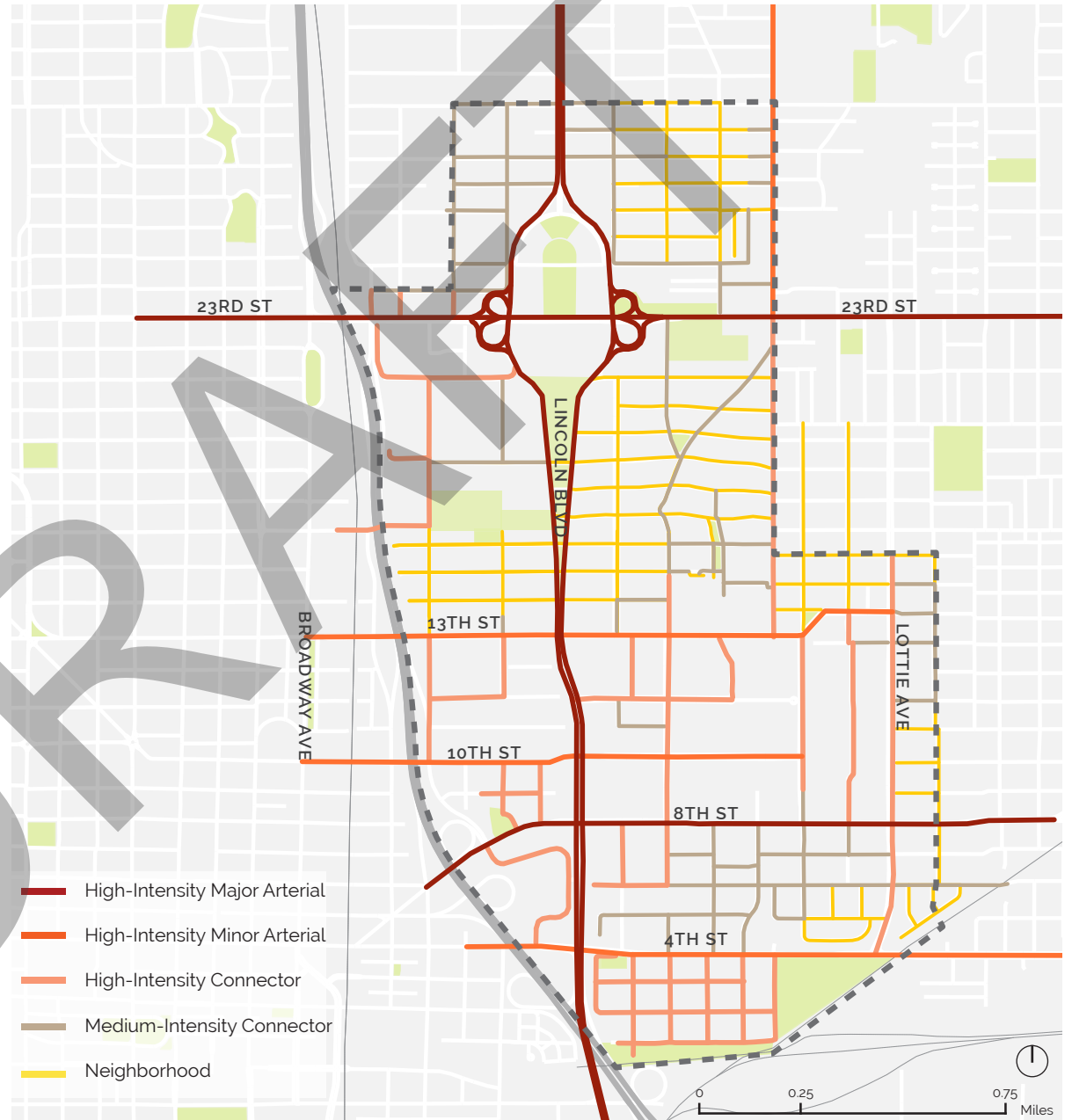
“Complete Streets” is a transportation policy and design approach that requires streets to be planned, designed, operated and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation.

The project team proposes a robust network of Complete Streets, each with its own character and function. The streets range from high activity primary streets to lower activity local access streets. Each street should be designed to provide for the safe and comfortable use of all modes of transportation, regardless of varying street design, overall width of right-of-way and the amount of right-of-way devoted to different elements (travel lanes, sidewalk, etc.). The proposed street types were developed from community engagement feedback and the **planokc** recommendations.

Higher activity streets are intended to carry the highest vehicle traffic, and therefore are the most continuous and uninterrupted streets within the development. Where these streets meet a site boundary, they are intended to continue into the development on adjacent land. Lower activity streets provide more internal access, have a lower priority to continue into adjacent property and may be interrupted by other site elements or development. All but the highest activity streets are intended to have low to moderate design speeds.

The street sections on the following pages, represent the typical proposed layout for each of these street types and indicate the key elements of each.

Proposed Street Types



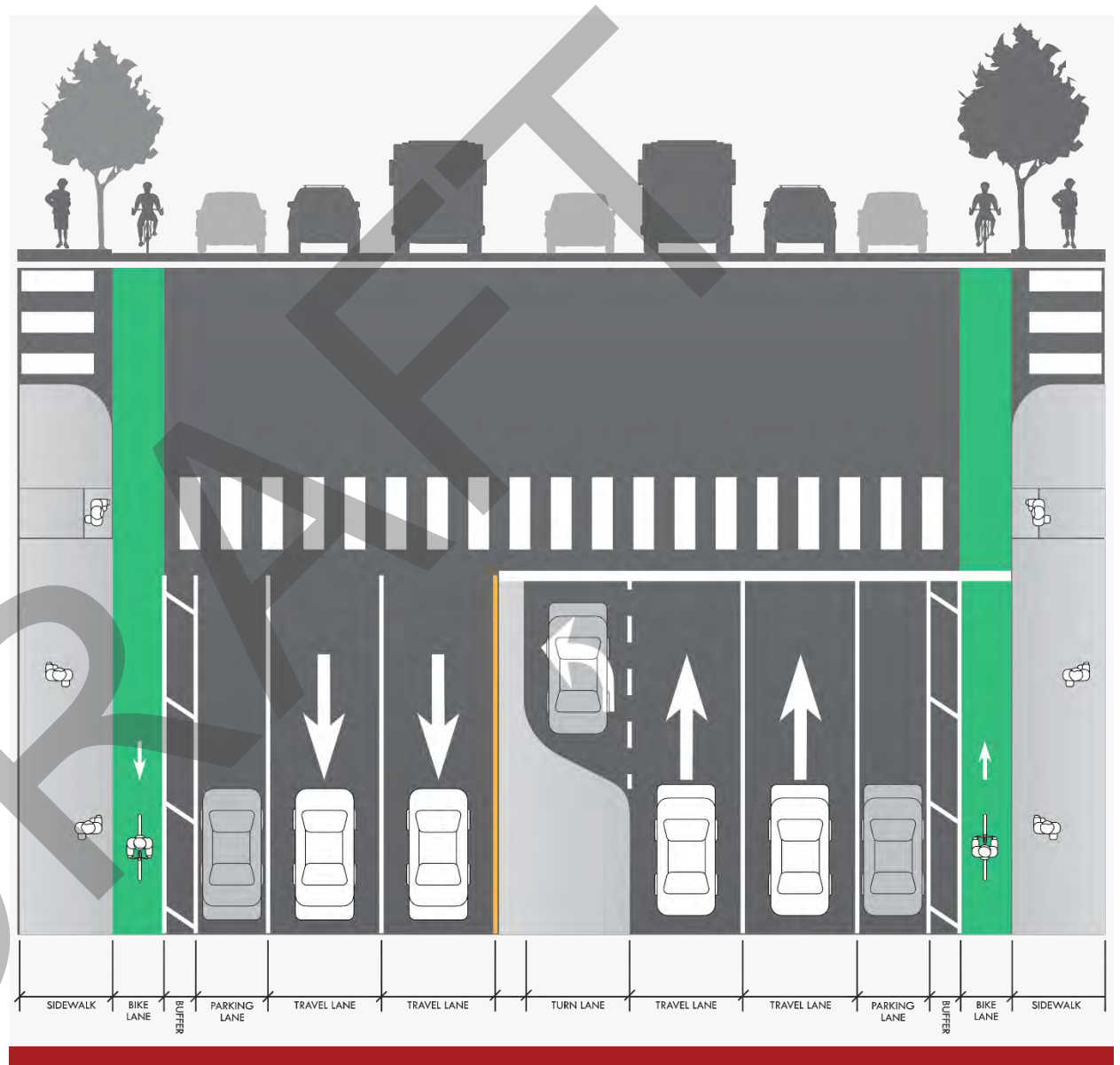
High-Intensity Major Arterial

Design Characteristics

- Moderate traffic speeds and moderate to high volumes
- Four 11' travel ways
- Left-turn lane/median
- Pedestrian crossing islands
- Protected bike lane: Locate bicycle facilities to the curbside where a buffer and the parking lane will add protection from moving vehicle traffic
- On-street parking

Recommendations

- Locate bicycle facilities to the curbside where a buffer and the parking lane will add protection from moving vehicle traffic
- Add pedestrian crossing islands to shorten crossing distances



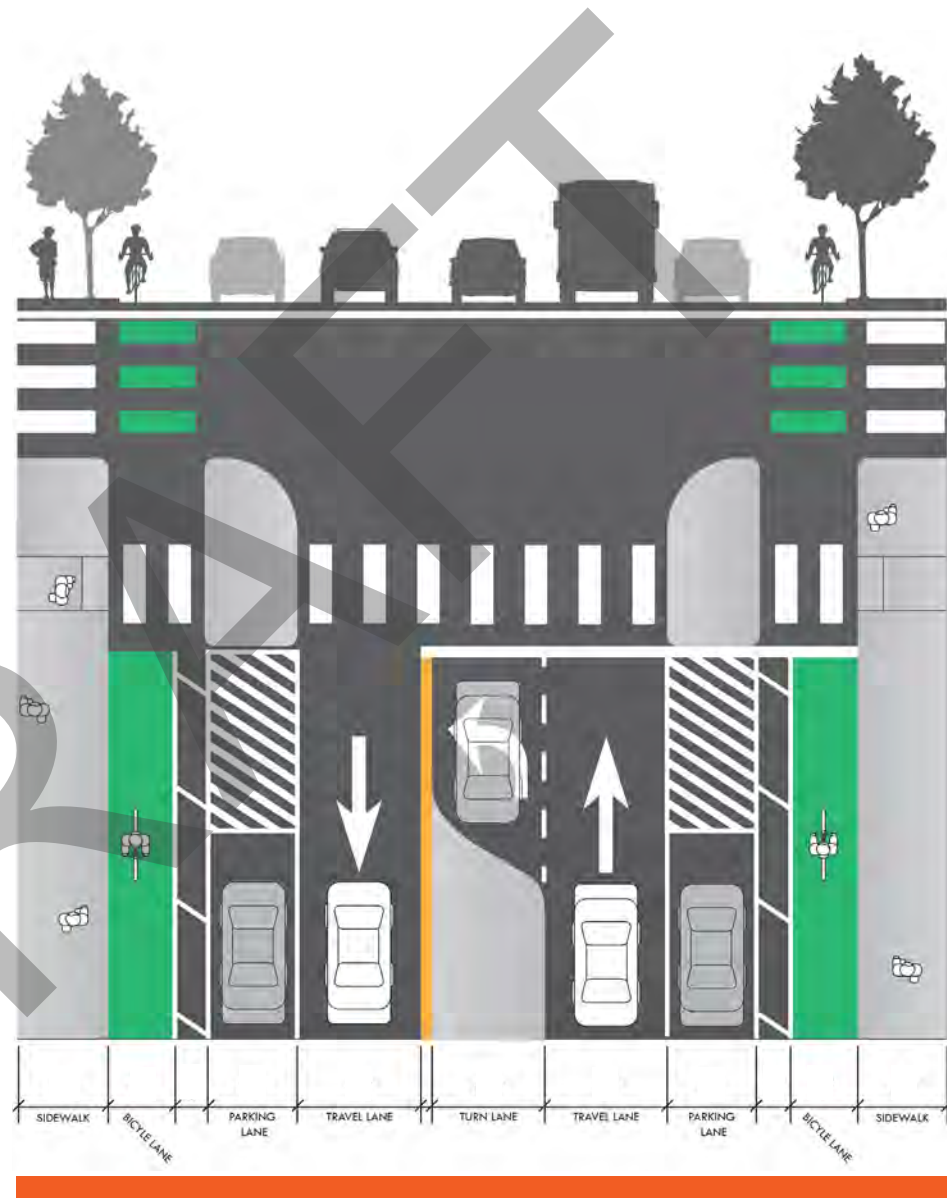
High-Intensity Minor Arterial

Design Characteristics

- Moderate traffic speeds and volumes
- Two 11' travel ways
- Left-turn lane/median
- Curb extensions
- Buffered or protected bike lane
- On-street parking
- Amenity zone

Recommendations

- Locate bicycle facilities to the curbside where a buffer and the parking lane will add protection from moving vehicle traffic
- Add curb extensions to shorten crossing distances and calm the speeds of right-turning vehicles



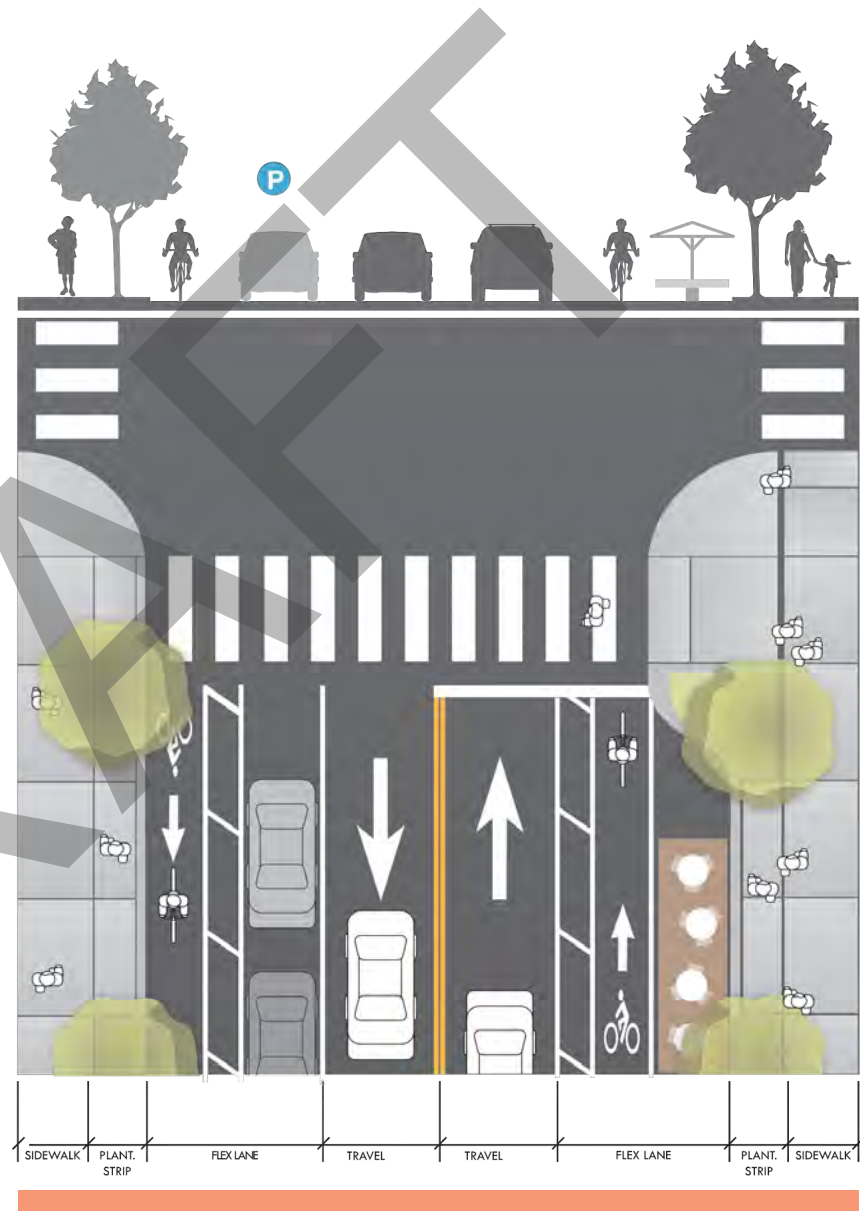
High-Intensity Connector

Design Characteristics

- Low-to-moderate traffic speeds and volumes
- Minimize automobile travel lane widths to increase room for bike and pedestrian traffic.
- Buffered bike lane
- Flex space (as described below)

Recommendations

- Designate the right-of-way space between the travel lanes and the curb as “flex” space that can be programmed with semi-permanent, interchangeable infrastructure according to context and/or need. Flex space should always include a buffered bike lane, but the remaining space could include:
 - Activated uses such as extra seating, interactive art/activities, or parklets/platform or spaces to linger
 - Bicycle parking
 - Transit loading platforms placement of the lane within the space
 - Additional bicycle facility space
 - Motor-vehicle parking
- The location of the bike lane depends on the use of the remaining flex space.
- Activated uses or bike parking should be located adjacent to the curb, and the bike lane should be located adjacent to the activated use or bike parking, with a buffer between the bike lane and the travel lane.
- Motor vehicle parking and transit loading shall be located adjacent to the travel lane, and the bike lane shall be located adjacent to the curb. A buffer is required between bike lanes and motor vehicle parking.



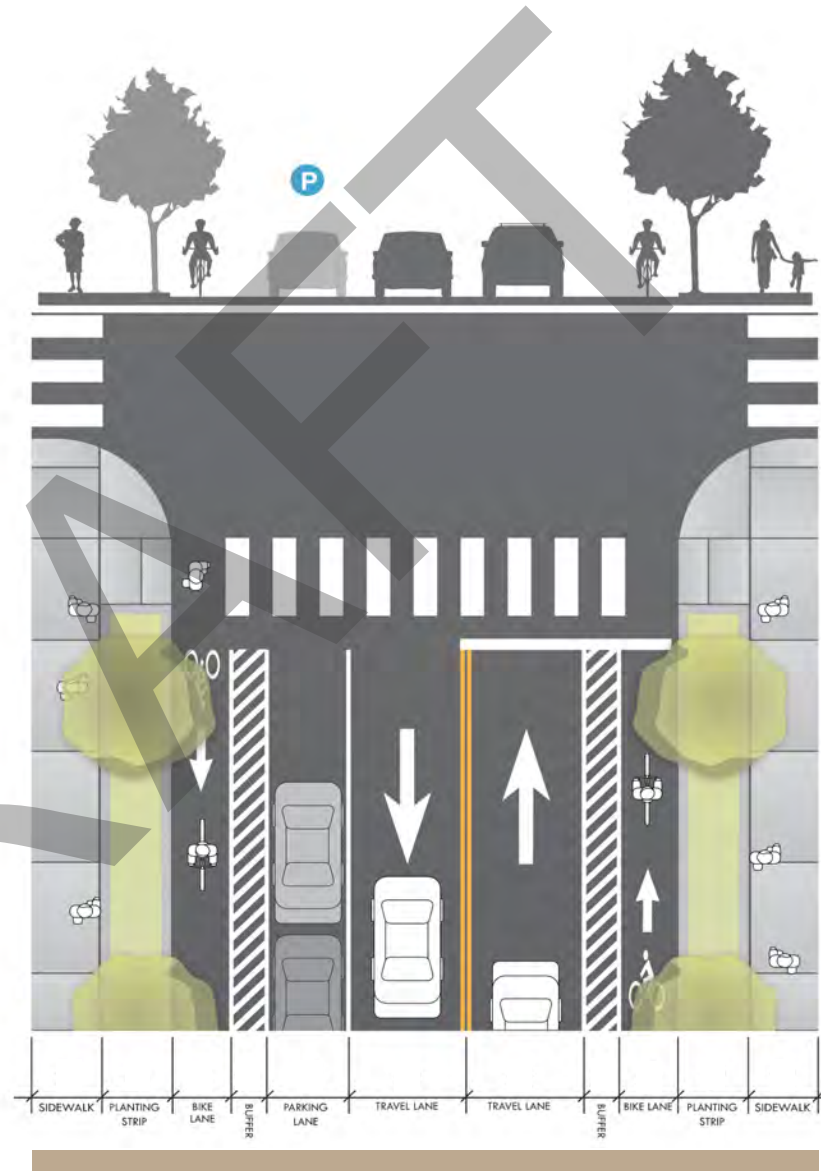
Medium-Intensity Connector

Design Characteristics

- Low-to-moderate traffic speeds and volumes
- Minimize automobile travel lane widths to increase room for bike and pedestrian traffic.
- Buffered bike lane
- "Flex" space

Recommendations

- Locate bicycle facilities on the curbside where a buffer and the parking lane will add protection from moving vehicle traffic



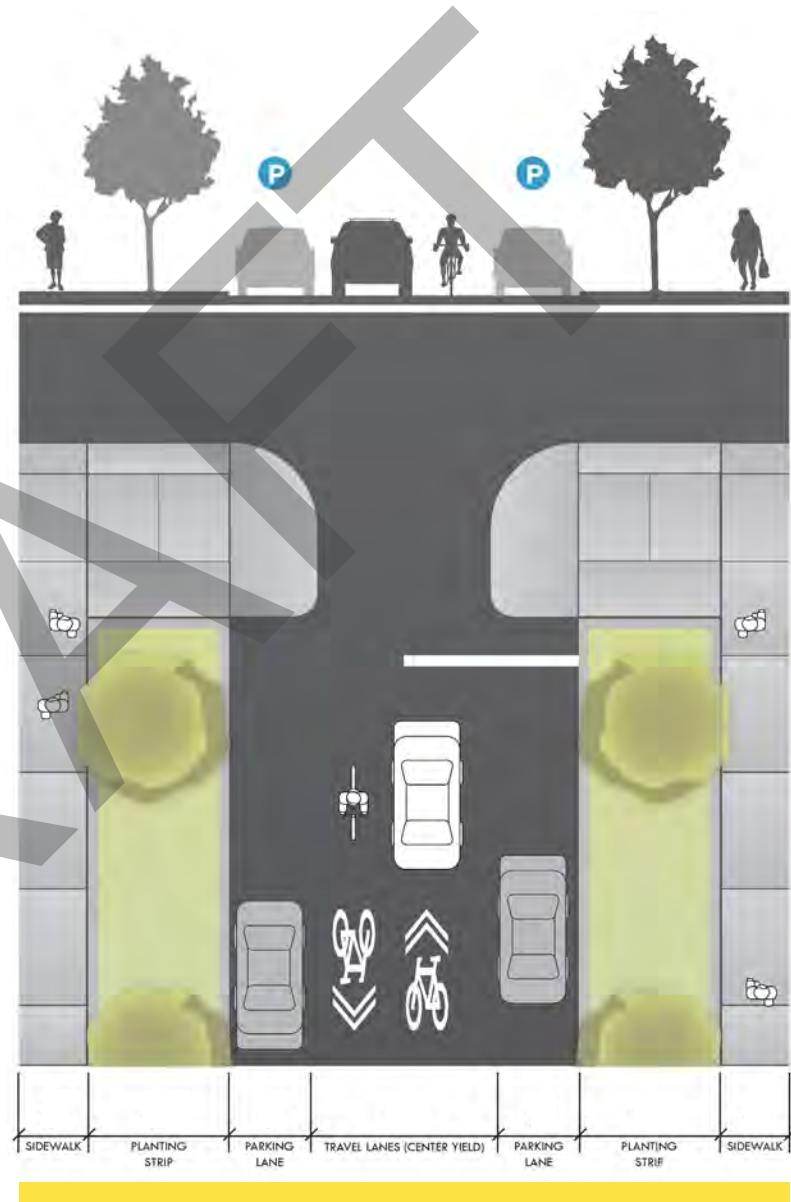
Neighborhood

Design Characteristics

- Low traffic speeds and volumes
- 16'-18' travel way (2 lanes, no centerline)
- Sharrows (bicycle routes with signage indicating that automobiles share the travel lane with cyclists) where appropriate
- On-street parking
- Curb extensions

Recommendations

- Leave travel lanes unstriped
- Locate sharrows centrally in the travel lane



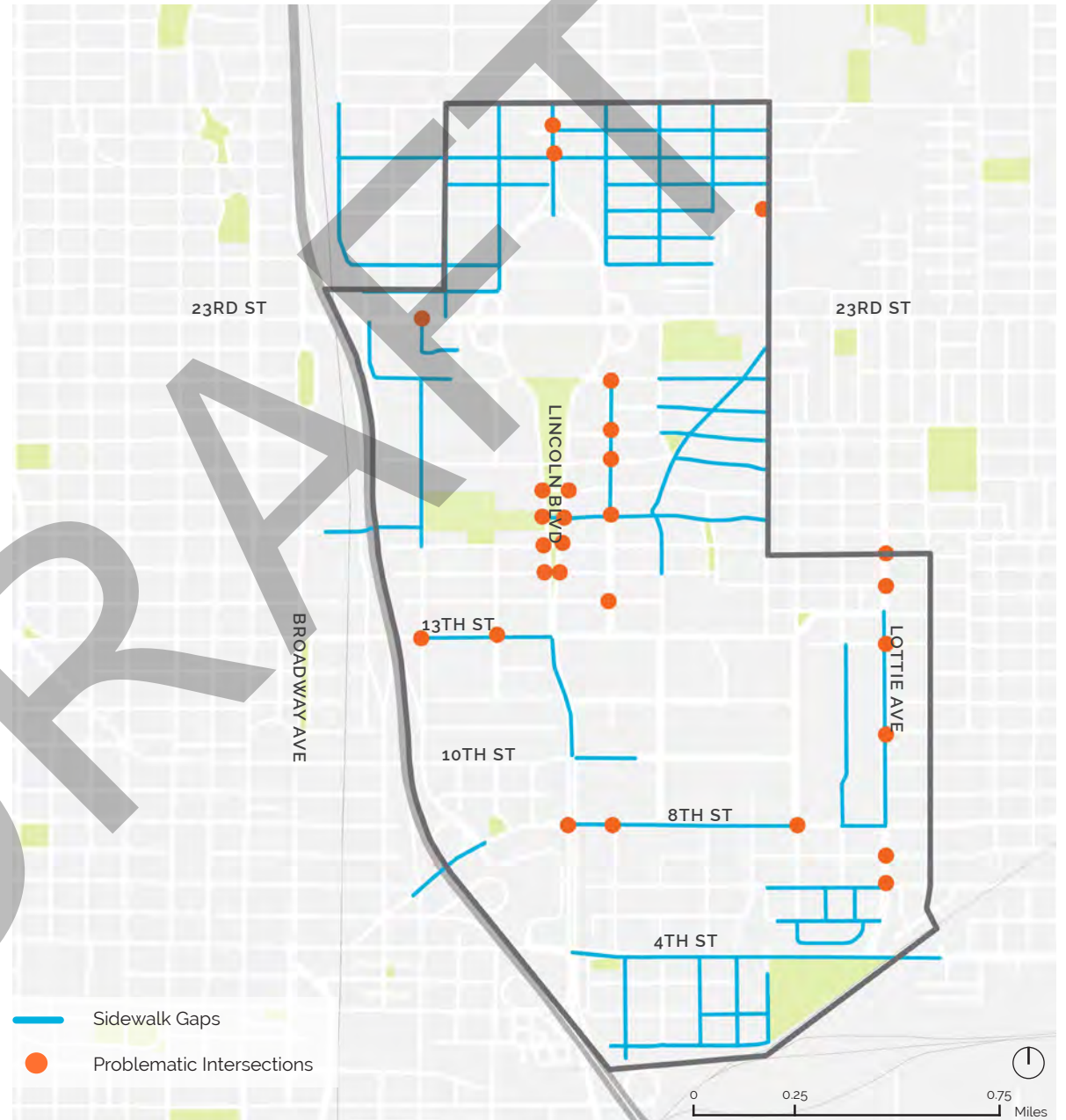
Pedestrian Connections

Just like the roadway network, the pedestrian network deserves the same level of availability. Gaps to be addressed can include missing sidewalks, as well as sidewalks with poor connectivity, including:

- Sidewalks on one side only on major roads with limited crossing opportunities
- Sidewalks that shift from one side of the street to the other too frequently or sporadically

Gaps also include potentially problematic intersections that currently do not feature any crossing facilities. These crossing facilities are proposed on roads that connect to important assets on site and receive high foot traffic. On the graphic to the right, sidewalk gaps are delineated in blue lines and potentially problematic intersections that currently do not feature any crossing facilities (such as crosswalks and push-to-walk buttons) are delineated in dots.

Proposed Pedestrian Connection Improvement



Key Bicycle Connections

Bicycle access to the study area should be provided with a strategic network of connections. These key connections should be designed to reflect both the land-use context of the corridor as well as the purpose of the connection from a mobility perspective.

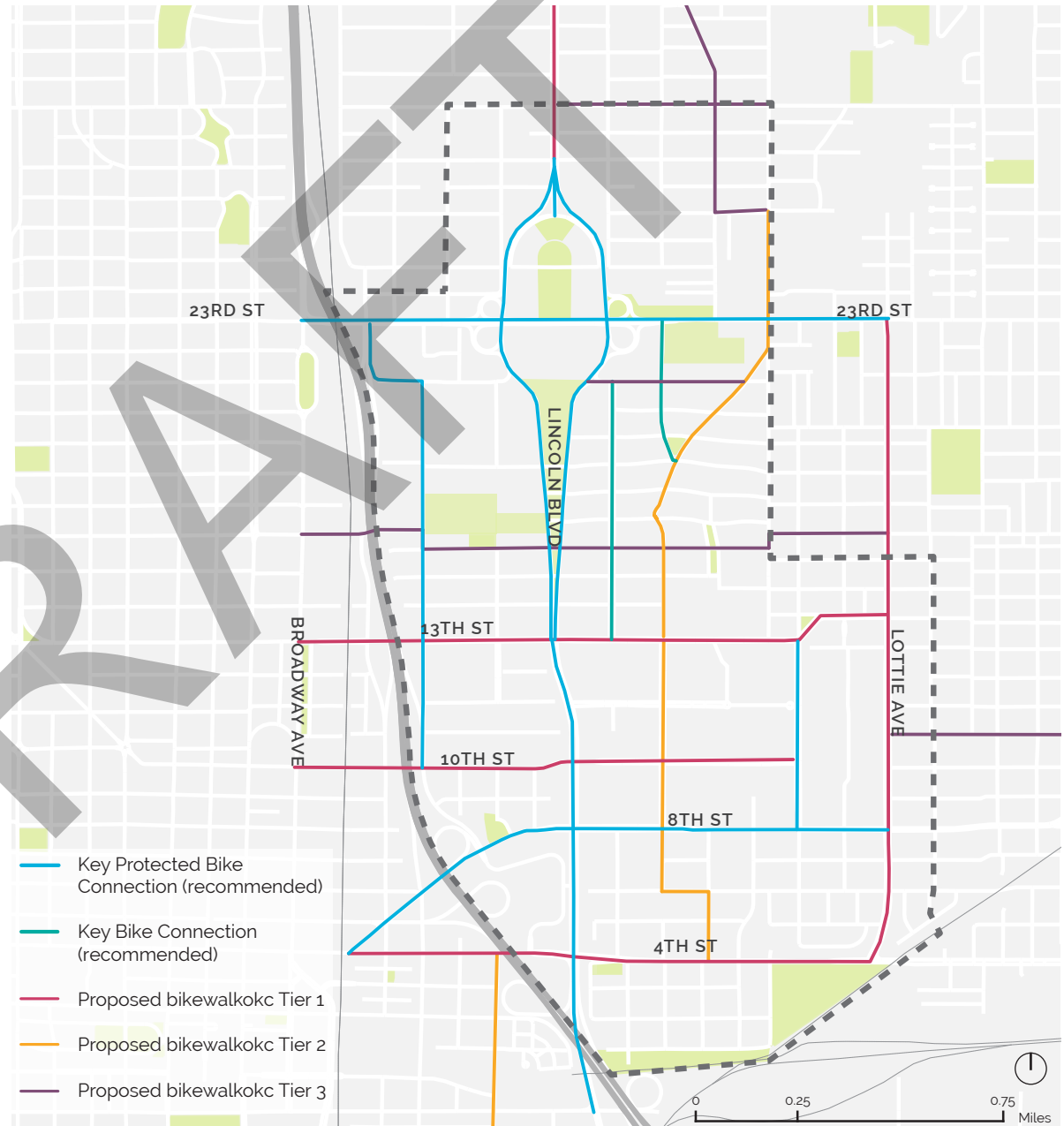
To provide a strategic bicycle network, the bicycle facility recommendations in the bikewalk**okc** plan should be completed. The facilities recommended fall into three tiers:

- Tier 1 – Protected bike lane preferred, separated multiuse trail if necessary
- Tier 2 – Protected bike lane if possible, conventional bike lane minimum
- Tier 3 – Conventional bike lane minimum, bicycle route (sharrows) minimum

In addition to the bikewalk**okc** connections, a selection of key bicycle connections along additional corridors is recommended, including:

- Protected connections on Lincoln Boulevard, 23rd Street, 8th Street, Stonewall Avenue and Walnut Avenue/21st Street
- Signed or sharrow-marked routes on Lindsay Avenue and on Phillips Avenue between 23rd Street and 18th Street

Proposed Bicycle Connections

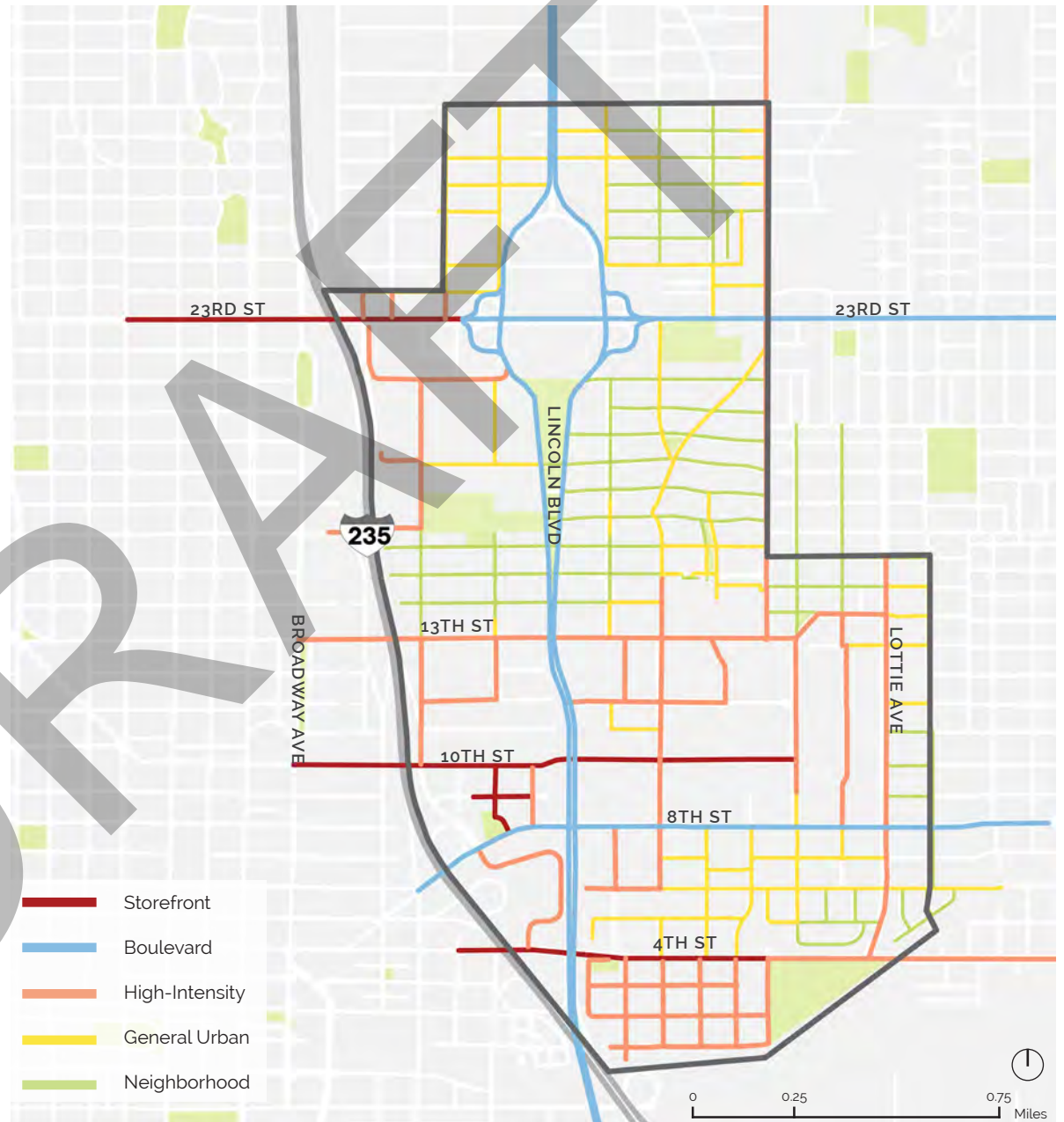


Pedestrian Zone Types

The Pedestrian Zone generally refers to the area between the property line and curb. The Downtown Development Framework identifies five different types of pedestrian zones. Applying the framework established in the DDF to the study area, the graphic to the right indicates the applicable pedestrian zone for each street. Refer to Section 3-3 Pedestrian Zone in the DDF to review the specific design guidance. The following are the Pedestrian Zone types:

- **Storefront** zone focuses on enhancing the spaces abutting commercial areas and are designed to carry the highest levels of pedestrian traffic and amenities
- **Boulevard** zones are along streets with high vehicular traffic and as such prioritize pedestrian safety and comfort
- **High Intensity** zones abut high density developments focussing on effective movement and comfort
- **General Urban** zones are the standard pedestrian zone used to accommodate medium to high pedestrian traffic
- **Neighborhood** zones are generally assigned to areas along smaller scale residential units with low to medium pedestrian traffic and have a residential feel

Proposed Pedestrian Zone Types

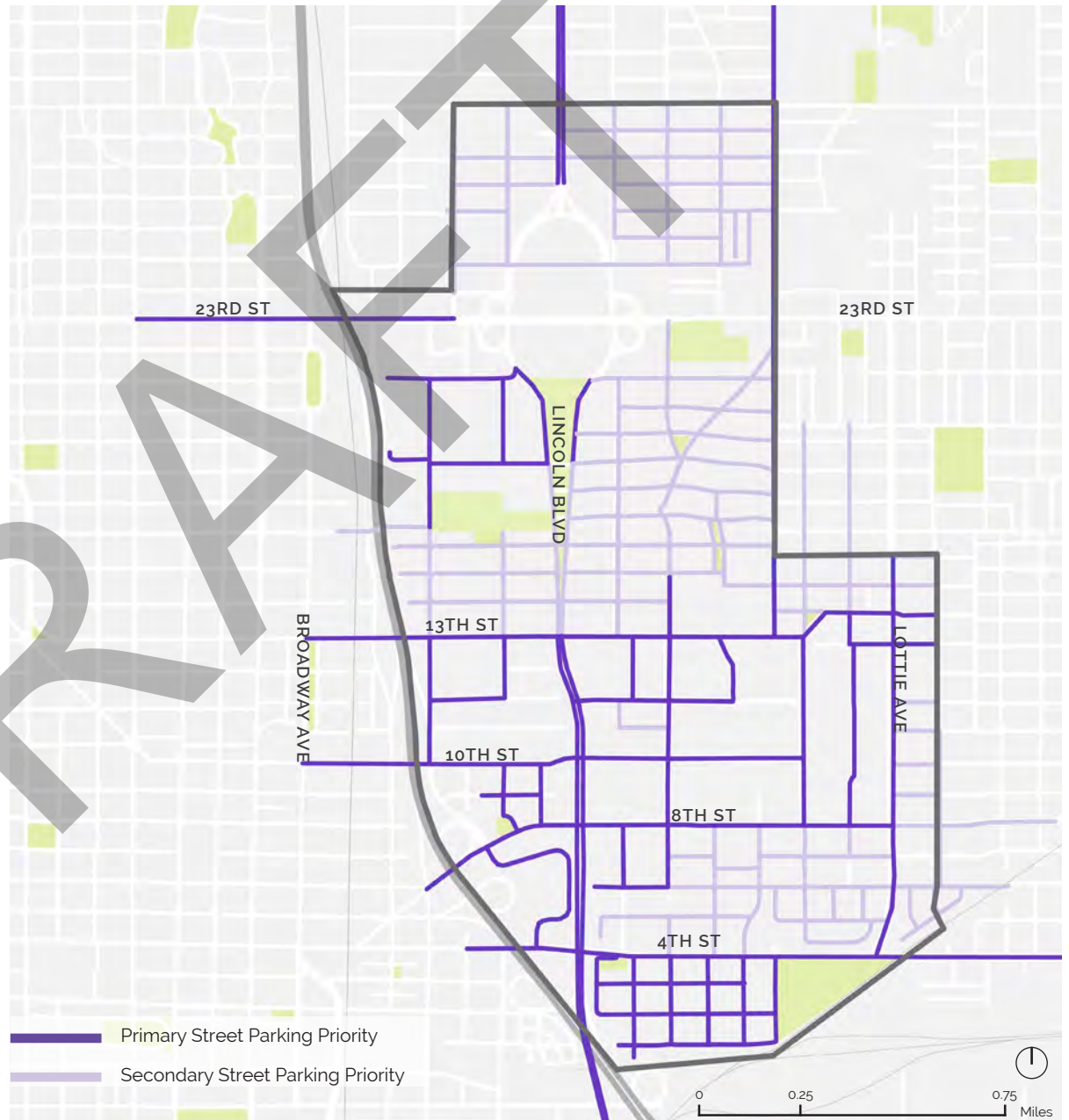


Street Parking Priority Types

The DDF assigns two priorities of on-street parking to various segments of the streets. The primary parking designation is assigned to segments with high priority of on-street parking. This prioritization will maximize the supply of parking to the greatest extent possible through creation and retention of spaces. Secondary parking priority is assigned to areas where parking is a priority, but where other components of the transportation network such as bicycle or transit infrastructure may take precedence.

Applying the framework established in the DDF to the study area, the graphic to the right indicates the applicable parking priority for each street. Within the study area, primary parking priority is designated to areas with presence of commercial uses and mixed-use developments in order to maximize access to these active spaces. Secondary parking priority is given to all streets within neighborhoods for creating the opportunity to improve multi-modal access for the residents within the area.

Proposed On-Street Parking



Transit Integration: Short-Term

The sections that follow detail short-term alternatives for providing transit access to the key trip generators in the study area. The short-term alternatives focus primarily on internal circulation between key trip generators, with extension options to provide service to the downtown Embark Transit Center and/or the residential neighborhoods to the east of the study area. The exception is an alternative that utilizes the existing bus transit network as-is.

Short-term alternatives include the following:

- Short Term Transit Alternative A:
Existing Bus Service
- Short Term Transit Alternative B:
OK Health Center Circulator Extension
- Short Term Transit Alternative C:
All-Area Circulator
- Short Term Transit Alternative D:
On-Demand Service



Embark operates existing bus service in the study area.



The Streetcar currently operates in the Central Business District east of I-235.

Short-Term Transit Alternative A: Existing Bus Service

Existing Embark services could be used to provide transit access to the study area in the short term, as there are several routes that make stops at or near one or more key trip generators. However, only one route (Route 24 Norman) provides direct service to all the key trip generators in the Innovation District area and Capitol area and is also the only route that currently provides direct access to the core of the Innovation District. Route 24 also runs only one trip per day per direction that makes stops in the study area. As a short-term solution, work with Embark to increase the frequency of Route 24 to increase the availability of transit options in the study area.

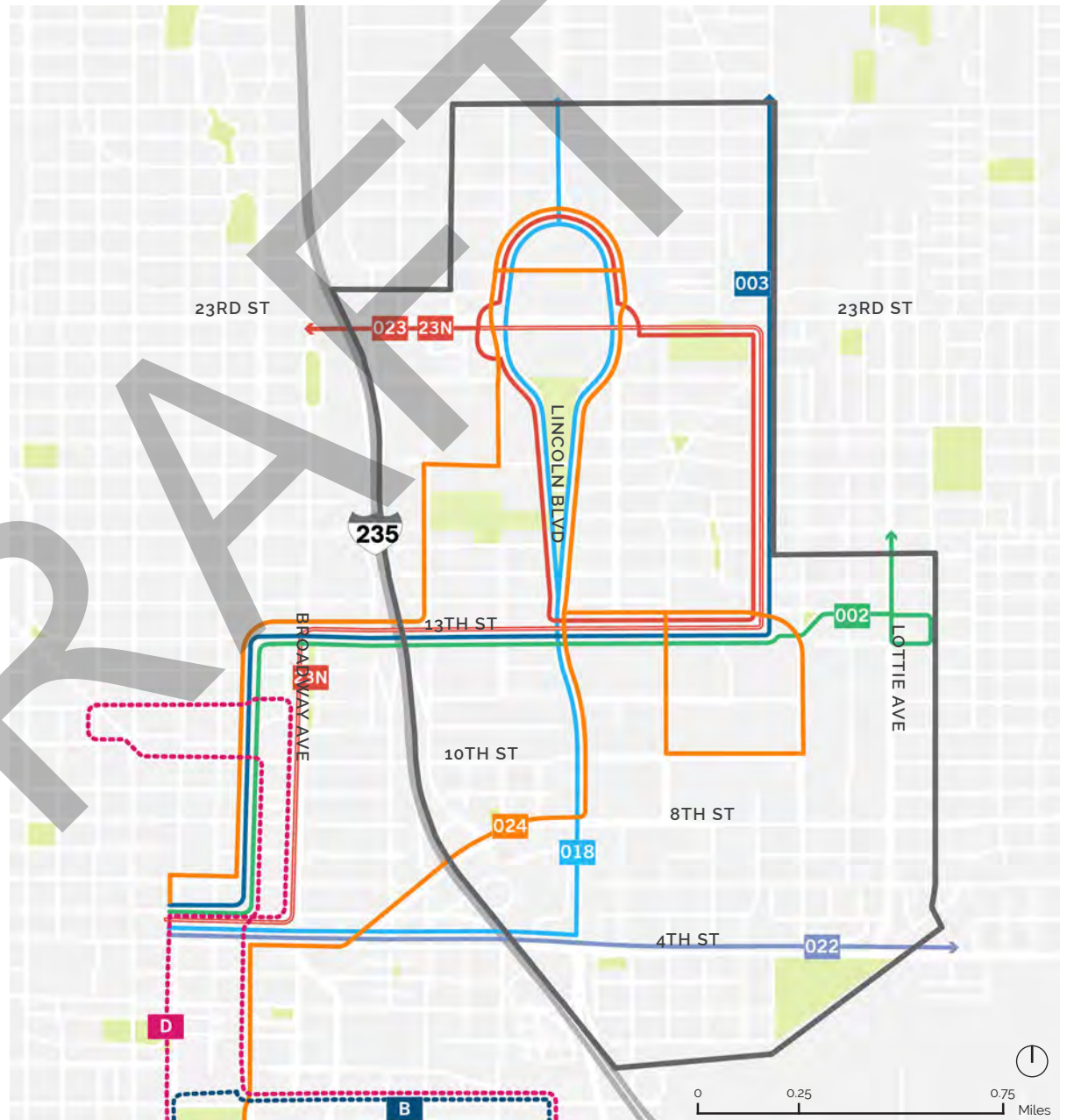
Embark Bus Routes

- 002 - Coltrane
- 003 - N Kelley
- 018 - Lincoln
- 022 - Martin Luther King
- 023 - 23rd Crosstown
- 023N - 23 Crossrown Night
- 024 - Norman (proposed increase in frequency)

OKC Streetcar Routes

- - - - D Line (Mon - Thu)
- - - - B Line (Fri - Sat)

Proposed Enhancements To Existing Embark Bus Service



Short-Term Transit Alternative B: OK Health Center Circulator Extension

The primary route of this alternative is an expansion of the existing Health Center shuttle route into the Innovation District area. This alternative provides service to the key trip generators within the Innovation District but does not serve the Capitol environs.

There are two further extensions of the route that can operate full-time or at strategic intervals as necessary (e.g. during a.m. and p.m. peaks, midday hours, etc.), or on an on-demand basis, if feasible:

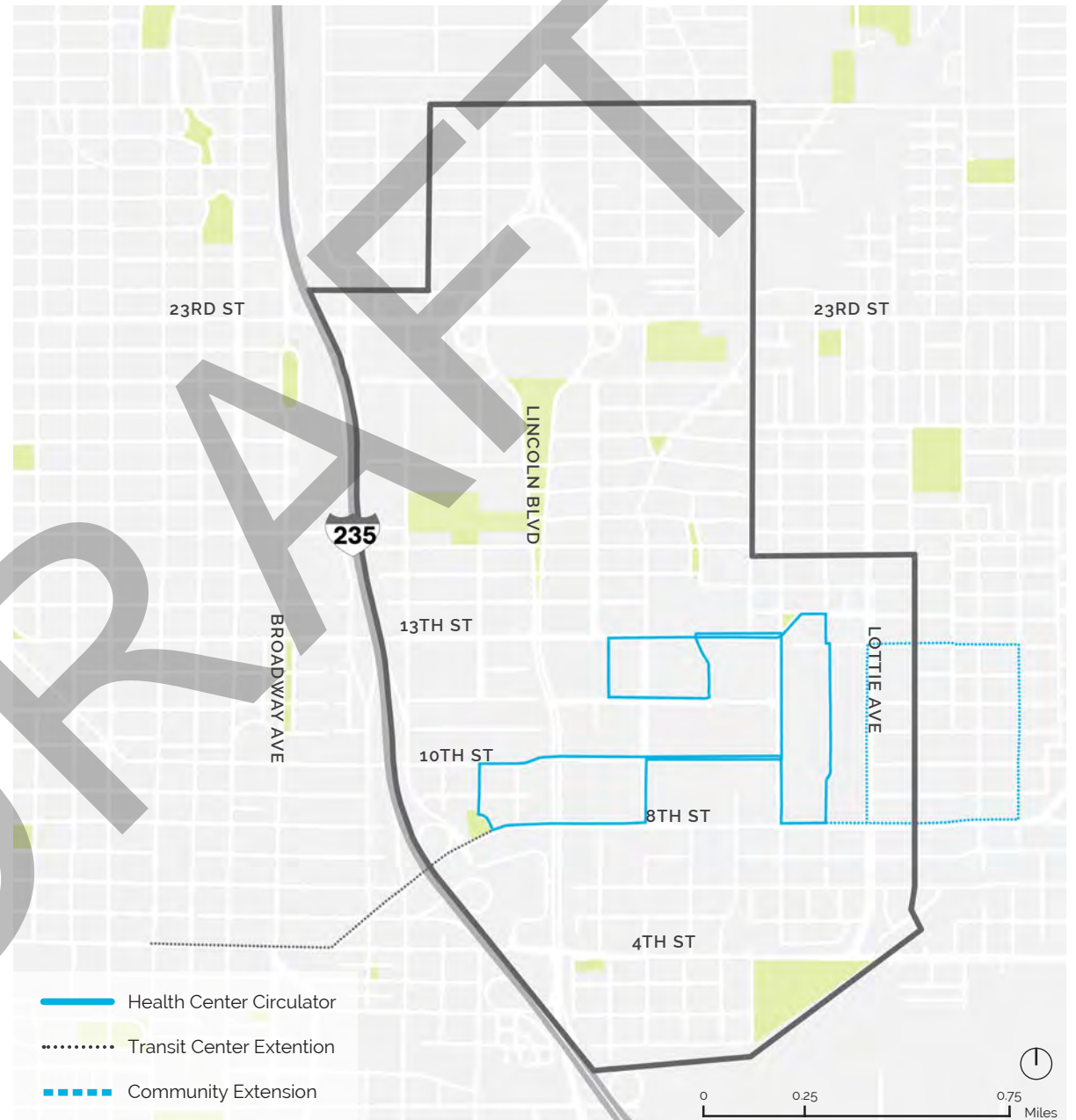
- **Transit Center Extension**

This extension would provide the key transfer necessary for potential users to access the area via transit. The extension would ideally operate during a.m. and p.m. peak hours or be incorporated into the full service as demand dictates.

- **Community Extension**

Provides a key link between the study area and the residential neighborhood to the east. This neighborhood is currently disconnected from the study area by the barrier created by the parking lots along Lottie Avenue between 8th Streets and 13th Streets, as well as the lack of transit options available to the neighborhood.

Proposed Extension of Health Center Circulator



Short-Term Transit Alternative C: All-Area Circulator

The primary route of this alternative provides service to the key trip generators in the Innovation District and Capitol Environs. This route closely resembles Embark bus Route 24 to Norman (which runs only one trip per day per direction that makes stops in the study area).

There are two further extensions of the route that can be run full time, or at strategic intervals as necessary (e.g. during AM and PM peaks, during midday hours, etc.), or on an on-demand basis, if feasible:

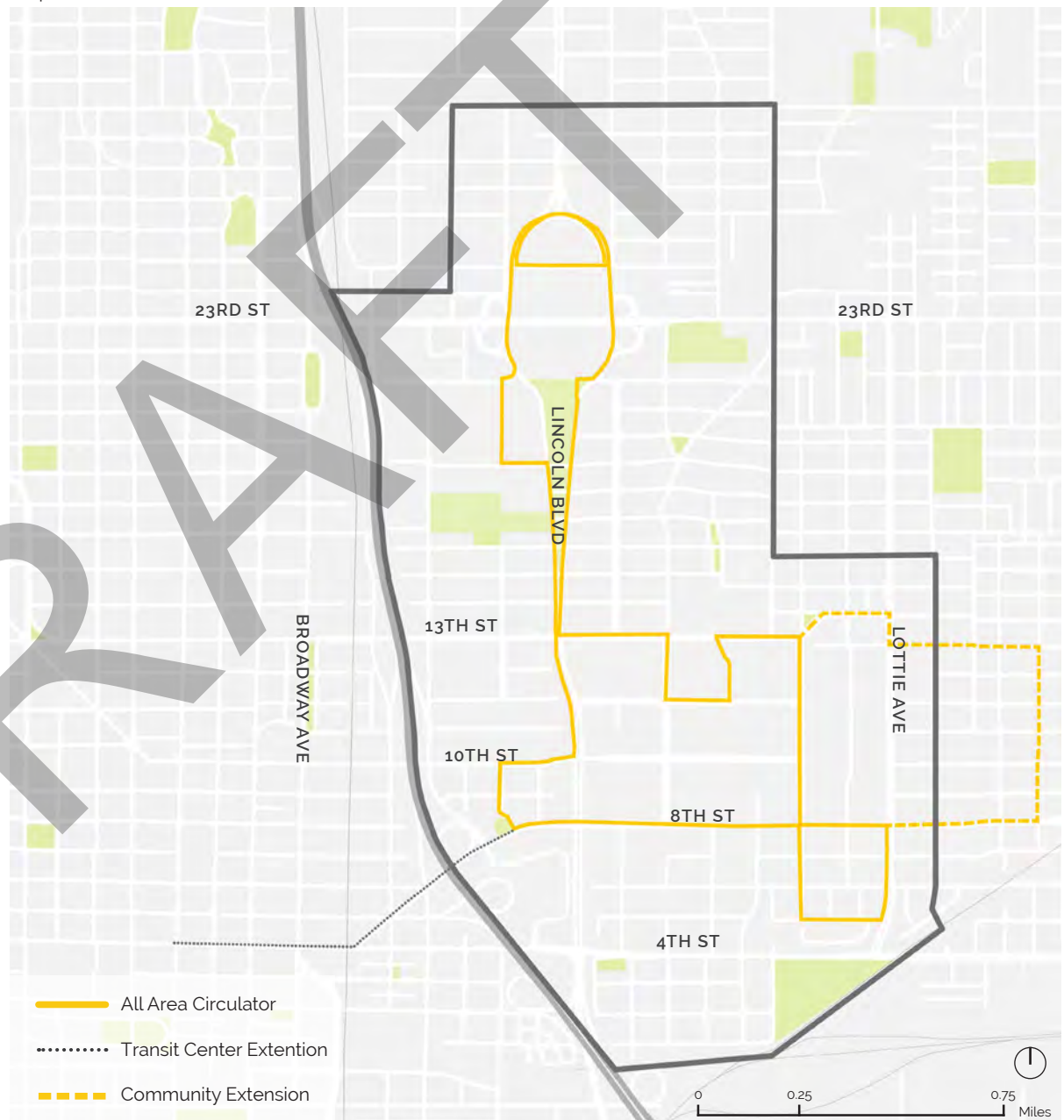
- **Transit Center Extension**

This extension would provide the key transfer necessary for potential users to access the area via transit. The extension would ideally operate during AM and PM peak hours or be incorporated into the full service as demand dictates.

- **Community Extension**

Provides a key link between the study area and the residential neighborhood to the east. This neighborhood is currently disconnected from the study area by the barrier created by the parking lots along Lottie Avenue between 8th Street and 13th Street, as well as the lack of transit options available to the neighborhood.

Proposed All Area Bus Circulator



Short-Term Transit Alternative D: On-Demand Service

On-demand service has its roots in traditional paratransit service (sometimes referred to as dial-a-ride or demand-response) and taxi service and refers to mobility services that allow a user to schedule a ride at the time of their desired trip, usually using a smartphone app, rather than by making a reservation for a ride several hours or days in advance. Unlike typical fixed-route bus or shuttle services, an on-demand service does not operate on a predetermined schedule and allows users to indicate where they want to be picked up and dropped off rather than adhering to a specific route alignment and set of stops. This provides users with more flexibility for passengers, and in areas with similar land use and demographic characteristics as the less-dense areas of the Innovation District, may be a more effective way to provide convenient transportation for short trips.

On-demand service may be provided as individual or shared rides, and may be provided by:

- A public operator (such as Embark)
- Private operators including taxis and ride-hail companies such as Uber or Lyft
- Privately run shuttle services



Bicycle Parking: Dedicating curbspace for bicycle parking and on-demand vehicle services improves safety, expands choice, and reduces parking demand.

App-based on-demand services allow users to hail rides and track vehicles with a smartphone. These services can potentially support a variety of objectives, including (but not limited to): replacing bus service, providing services outside of fixed-route transit operating hours, connecting to mass transit or demand generators, and serving community amenities. They can operate under a variety of service models such as:

- **Zone-based Model:** In a zone-based model, on-demand connections would be provided within a defined service area. The service area could be the whole study area or multiple subdistricts (e.g. a Capitol environs, Innovation District, etc.)
- **Hub-based Model:** A hub-based model provides trips to and from specific locations or areas. For example, on-demand connections could be made to the centers of the Innovation District (Stiles Circle), Health Center (Phillips Avenue/Young Boulevard), or Capitol environs (NE 21st Street/Lincoln Boulevard).
- **Corridor-based Model:** In a corridor-based model, on-demand rides are provided along corridors not served by transit or outside of fixed-route transit operating hours to fill gaps in service. Potential corridors for this model include 8th Street, 10th Street, Stonewall Avenue, Phillips Avenue and Stiles Avenue. These could potentially advance transit and connections to Automobile Alley and the Central Business District.
- **Hybrid Model:** A hybrid model is like a zone-based model but can be adjusted to include specific destinations outside of the zone. If the zone-based model, for example, provided connections between any two points within the Innovation District, the hybrid model would allow those connections, plus connections to other important destinations outside the zone (e.g. a neighborhood hub east of the study area).



Models of Short Term Transit Alternative D : On-Demand Service

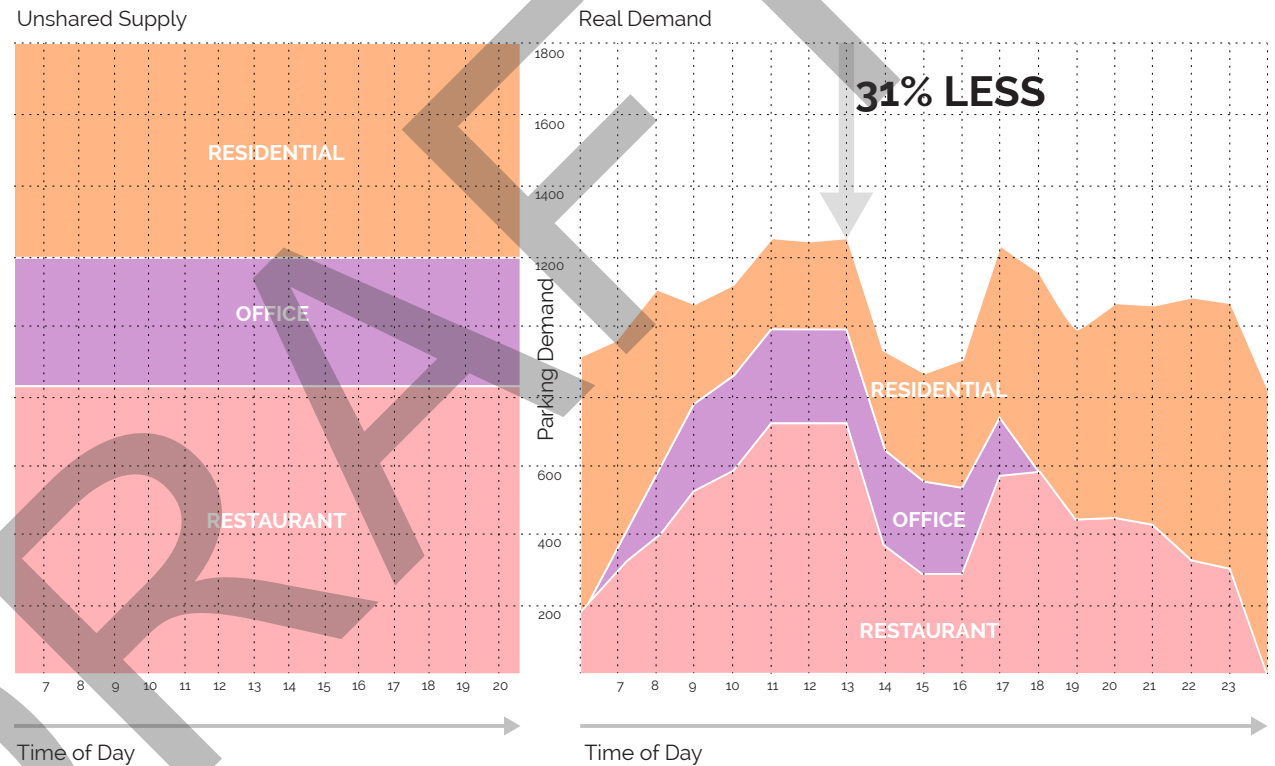
Establishing a framework for on-demand services can lay the foundation for future advanced transit options such as autonomous mobility.

Shared Parking

The High-Intensity Mixed-Use and Commercial Corridor areas present an opportunity to implement a shared-parking approach that will reduce the parking supply needed and thereby reduce the number of vehicle trips and vehicle capacity needed. Shared parking is the concept of using the same parking spaces for two or more different land uses at different times, as peak parking demand hours often differ among land uses, even in the same adjacent developments. A shared parking approach is built upon two foundational parking demand principles - Staggered Peaks and Internal Capture.

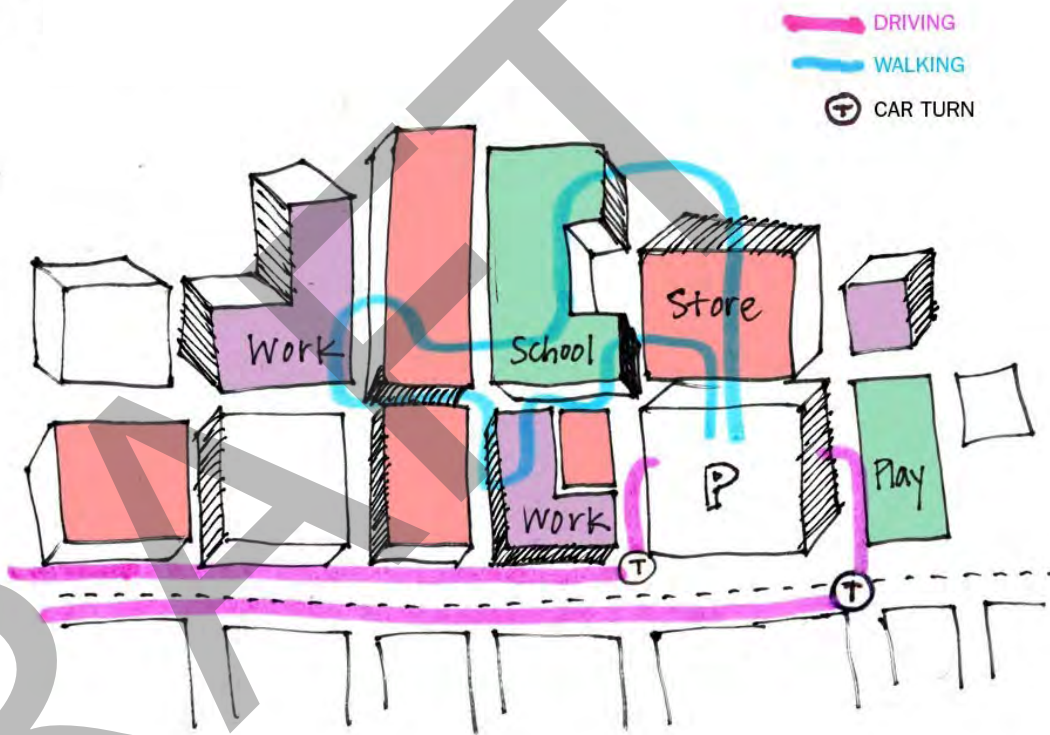
Staggered Peaks

Demand for parking varies by use throughout the hours of a day and days of a week. Office space generates parking demand during traditional weekday business hours. Parking for residential housing is often highest overnight as many residents use their cars during the day. Parking demand generated by restaurants is highest during meal times and into the evening. When parking is shared between multiple uses, the aggregated parking demand by time of day is less than the total if programmed separately for each use.



Internal Capture

A single parking space that is used for one use at a single time may also serve another use at the same time simply by virtue of the ability to walk to a second destination after parking at the first destination. As illustrated in the figure to the right, an individual may park in an off-street facility, stop by a store for breakfast, attend class in the morning, walk to work after class and pick up clothing at a dry cleaner in a mixed-use building before leaving the area. This eliminates demand for one parking space each at the store, the class, the employer and the dry cleaner. Mixed-use areas naturally promote this type of shared parking which eliminates the need for many redundant parking spaces.



Example of Internal Capture: Since most of the spaces are within walking distance of one another, mixed-use areas usually have shared parking facilities.

Transportation Demand Management

To effectively reduce the number of personal vehicles accessing the Innovation District, the parking strategy must be developed in tandem with a Transportation Demand Management (TDM) strategy. TDM consists of transportation or land use related intervention measures that optimize the available transportation network services and infrastructure by encouraging the use of more space-efficient travel modes, or avoiding vehicular trips altogether. Typically, TDM strategies are more cost-effective than the capital investments and resulting maintenance associated with increased roadway for parking capacity.

Following is a range of possible district-level appropriate TDM strategies that could be considered using both transportation and land use approaches. The specific elements and implementation of a TDM strategy would ultimately depend upon the development projects in the district.

Car-light Planning

Strategically plan and arrange land uses and developments to maximize internal capture.

- Limit the number of parking spaces to match the complete network of access options.
- Encourage carpooling and multi-modal travel to activity areas and parks.
- Establish a car sharing program.
- Provide circulator shuttle that connects to primary activity centers and transit options.
- Implement micromobility (e.g. bike and scooter) sharing programs.
- Provide secure bike parking throughout the district.
- Provide centralized locker locations for personal package deliveries.
- Allocate front-door curbside space for ride-hailing pickups and dropoffs.
- Locate transit stops near parking facilities.

Parking Management

Manage parking in a manner that ensures efficient use of parking facilities and reduces the need to build more parking than recommended.

- Share parking between complementary uses.
- Prioritize curbside parking management for higher-value uses such as service vehicles, deliveries, customers, quick errands, and people with special needs.
- Eliminate parking minimums.
- Provide remote parking facilities off-site or in the outer areas.
- Charge users and/or providers directly and strategically for using parking facilities.
- Use charging techniques to make pricing more convenient and cost effective.
- Provide financial incentives to shift mode, such as transit subsidies.
- Unbundle the cost of parking from rent, or sell access to parking facilities separately from building space.
- Change tax policies to support parking management and mobility goals.
- Provide ample, quality, situationally appropriate bicycle storage and changing facilities.
- Insure that parking regulation enforcement is efficient, considerate, and fair.

Right-of-Way Allocation

Maximize the amount of right-of-way space devoted to non-motorized modes and transit, and minimize or eliminate dedicated single occupancy vehicle (SOV) travel lanes and parking spaces in the right-of-way where possible.

Traffic and Access Management

Manage traffic and access in a way that starts by letting people walk within the district, reduces traffic speeds and improves the experience of non-SOV modes.

- Incorporate vehicle use restrictions
- Provide traffic calming measures
- Reduce traffic speed
- Utilize car-free planning (the reduction of motorized spaces and conversion of parking lots to public spaces)
- Prioritize pedestrian and bicycle-oriented design

Strategic Roadway Connectivity

Maximize the density of connections, and the directness of links, with short links, frequent intersections, and minimal dead-ends. Also, enhance connectivity for preferred modes by providing more frequent connections and ensuring connection opportunities through areas that are otherwise closed to SOV's.

Pricing, Investment and Reinvestment

Reduce fees for higher priority modes and increase prices for lower-priority modes. Provide more funding for higher priority modes.

- Analyze and reallocate parking pricing
- Incentivize ride-hailing pool
- Utilize commuter financial incentives including discounted transit passes and bike/scooter-share memberships
- Utilize traffic mitigation incentives such as transit subsidies to shift predominant mode
- Incorporate district-wide mobility funding that develops comprehensive programs with mutually reinforcing services, so all employees, residents and visitors have access to all modes

Long-Term Transit Alternative: OKC Streetcar Extensions

The long-term alternative provides options to extend streetcar service into the study area to access key trip generators. The lines identified could also be served by autonomous shuttle or Bus Rapid Transit. There are two Oklahoma City Streetcar extension options that could serve the key trip generators of the study area as development fills in:

- Innovation District extension along 8th Street, Stonewall Avenue, 13th Street and Lincoln Boulevard.
- Capitol Complex extension along 23rd Street. This extension would serve two—and potentially serve all three—of the plan **okc** Transit Oriented Development Zones planned for 23rd Street.

Proposed Extension of Streetcar



Proposed

- Innovation District Extension
- Capitol Complex Extension

Existing

- OKC Streetcar Downtown Loop
- OKC Streetcar Bricktown Loop

Proposed Streetcar Extensions

