The Future of Main Streets for Sustainable Placemaking in Downtown Arlington

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The idea of a contemporary "Main Street" that draws on the traditional typology of historic cities and towns is a recognized model for urban economic development (Talen and Jeong 2019; Duany, Plater- Zyberk, and Speck 2000; Llewelyn-Davies 2007; Mehta and Bosson 2010). Centrally located between Dallas and Fort Worth, Arlington is home to major sports stadiums, theme parks, the Dallas-Fort Worth (DFW) airport, and the University of Texas at Arlington (UTA). However, despite the city's rapid population growth, downtown Arlington lacks local development that would balance that large-scale planning. Still, a recent infrastructure investment along Abram Streets suggests that the development of a Main Street is possible. According to U.S. Census data from 2008–2012, 92% of employees in Arlington commute by driving, while downtown and the university's campus are categorized as food deserts. Drawing from the principles of New Urbanism and successful examples of Main Streets in Dallas and Fort Worth, we propose urban design and planning images for placemaking in downtown Arlington to promote local business, food, retail, and transit alternatives for active walking, bicycling, and use of public transit. Our study on Main Streets will be used to achieve two goals: one, an assessment of the feasibility of creating a Main Street in downtown Arlington, and two, a study that will expand the current literature on placemaking to the context of postwar Sunbelt cities, a topic that has not received much attention. We suggest that the built infrastructure of 1920s streetcar corridors can be reused as a new foundation for walkable Main Streets and targets for planning initiatives to anchor sustainable urban redevelopment. We expect the project to both have local impact and make an important contribution to the scholarly literature on sustainable urban development in a post-sprawl context.

THE GROWTH AND LIMITATION OF THE DALLAS-FORT WORTH METROPLEX

In the last three decades, the Dallas-Fort Worth metroplex, officially designated Dallas-Fort Worth-Arlington, has gained more than 3 million residents, increasing its population by nearly 30% each year. However, despite this growth, the metroplex has been struggling with the products of decentralized, auto-centric development. According to U.S. Census data in 2019, more than 80% of the employees in the metroplex drive to work alone, an even higher percentage than the U.S. average (76%). A recent study in the CityLab found that the Dallas-Fort Worth metroplex has the lowest Car-Free Index,[1] compared to other metropolitan areas, implying that the metroplex is among the worst places to live without a vehicle.

Centrally located between Dallas and Fort Worth, Arlington is home to major sports stadiums, theme parks, the Dallas-Fort Worth (DFW) airport, and UTA (Figure 1). In the last 20 years, population and housing density, along with median household income, in Arlington have increased nearly 30%. While the city has been growing rapidly, development is still sparse; downtown Arlington lacks the local development that would balance large-scale planning and create a "destination" that serves daily needs and promotes cultural growth.

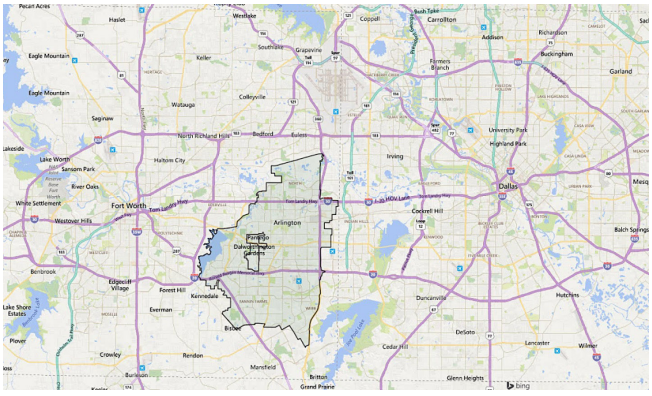

Figure 1. Arlington in the Dallas-Fort Worth Metroplex

It is widely known that Arlington is the largest city in the country without public transportation[2]; According to U.S. Census data from 2008–2012, 92% of employees in Arlington commute by driving. The average commuting time in Arlington is 27.2 minutes one way, which is longer than the U.S. average of 26.4 minutes. Car-based sprawl also affects public health in Arlington. According to the United States Environmental Protection Agency's (EPA) National Air Toxics Assessment, the annual Air Quality Health Risk for Arlington in 2019 was 54 (out

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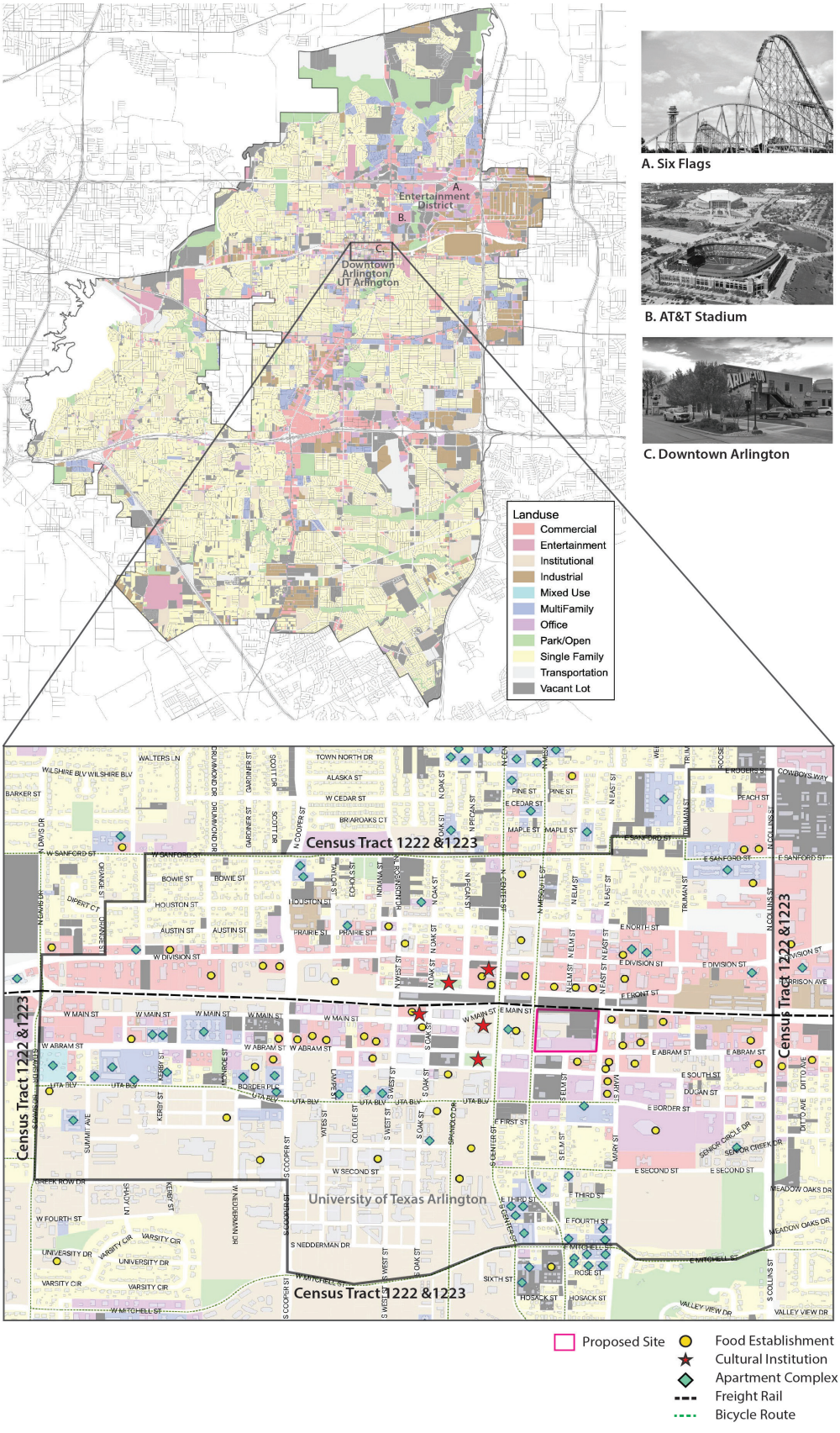

Figure 2. Land Use and Major Destinations in the City of Arlington and Downtown (Census Tract 1222 and 1223)

of 100), higher than the Dallas-Fort Worth-Arlington Metro area (48.8), Texas (37.2), and the U.S. average (38.5). This implies that Arlington has a higher level of vehicular emissions and pollutants from factories that cause respiratory illness and cancer than the national and metro averages. A high autodepency in Arlington also entails the issue of food insecurity; the U.S. Department of Agriculture's (USDA) food atlas research[3] shows that downtown Arlington and the UTA campus are classified as food deserts, indicating low-income census tracts without easy access to supermarkets.

Figure 2 shows land uses in the City of Arlington and its downtown. Approximately 91% of parcels in Arlington are built for single-family housing; there is a lack of diversity in building and land uses. Currently, the Entertainment District serves as a major destination in Arlington, with large-scale recreational and sports venues, such as the AT&T Stadium and Six Flags (Figure 2), which are occasionally used for sports and recreational events. Commercial use, mainly in the form of strip malls, accounts for 1.7% of total land use. Many retailers and strip malls have been vacated, particularly after the recent COVID-19 pandemic crisis. A new zoning law that would allow mixed housing and other uses in underutilized commercial spaces is needed. While the university, which is near the downtown area, serves as a major hub for education and culture, the neighborhood lacks walkable destinations, including mixed housing, commerce, and cultural venues that support "everyday" needs and public health.

Given its scattered clusters of amenities and businesses, downtown Arlington is becoming a pedestrian-friendly destination for the community and university. Abram Street was a former interurban streetcar corridor that once existed until 1934, and was operated by the North Texas Traction Company. An interurban streetcar traveled between Dallas and Fort Worth and included four stops in Arlington. The city's four-phase "Downtown Abram Street Rebuild" project, completed in 2020, aims to reduce the roadway to allow additional on-street parking, new sidewalks with landscaping, public art, and pedestrian amenities to support the lives of small businesses and new mixed-use buildings. The project hopes to create a walkable, vibrant town square by enhancing pedestrian amenities and landscaping around shops and restaurants.

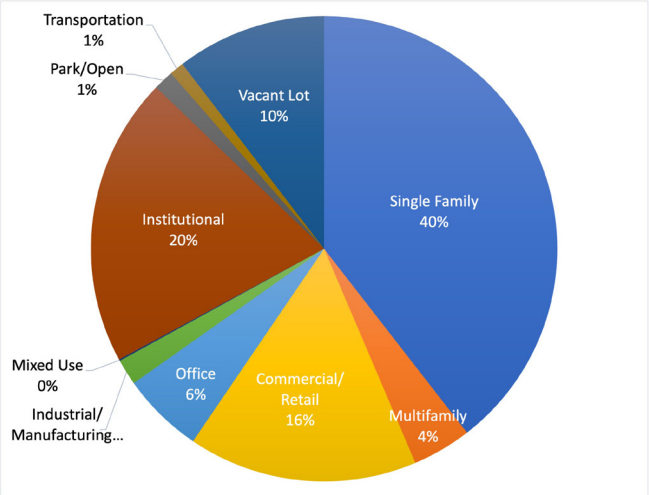

Figure 3. Land Use Distribution in Downtown Arlington (Census Tract 1222 and 1223, Tarrant County)

Still, there are a significant number of surface parking and vacant lots (10%) left empty in downtown Arlington (Figure 3). In a two-census tract combined area, single family housing is most predominant (40%), followed by institutional (20%) and commercial (16%) uses. While there are a few multifamily residential buildings that have been recently constructed (4%), mixed use is less than 1%. The housing density in downtown Arlington is 3.5 units per acre, which is generally considered suburban low-density (Campoli and MacLean 2007). Also, demographic data (Table 1) for downtown Arlington shows that, despite proximity to the university campus, the median household income and percentage of bachelor's degree holders in the downtown area are significantly lower than in the Dallas-Fort Worth-Arlington metro area and the entire United States. These numbers imply that future revitalization needs to balance the densification of housing and amenities and against the need for local jobs and co-ops that utilize existing resources and spaces.

Demographics	Downtown Arlington	Dallas-Fort Worth-Arlington Metropolitan	U.S.
Population	6,500	73,206	324,697,795
Hispanic (%)	29.3	28.9	18
White (%)	32.4	46	60.7
Black (%)	17.7	15.5	12.3
Asian (%)	16.2	6.8	5.5
Other Races (%)	4.4	2.8	3.5
Housing Units	1,107	2,764,978	137,428,986
Bachelor's Degree (%)	16.7	35.2	19.8
Unemployed Rate (%)	7	4.4	5.3
Drive to Work (%)	61.3	80	76
Carpool to Work(%)	14.4	9.4	8.9
Public Transport to Work (%)	0	1.3	5
Walk to Work (%)	16.9	1.2	2.6
Bicycle to Work (%)	2.3 (bike & other modes	0.2	0.5
Other Means to Work (%)		1.1	1.4
Working from Home (%)	5.2	6.6	5.7
Median Household Income ($)	23,282	70,281	62,843
Median Rent ($)	826.5	1,139	1,062

Table 1. Demographic Statistics in Downtown Arlington (Census Tract 1222 and 1223) (Data Source: U.S. Census American Community Survey, 2015–2019)

NEW URBANISM AND TRANSIT-ORIENTED DEVELOPMENT

Since World War II, cities have lost both density and a mix of housing and social environments as investment in automotive infrastructure accelerated suburban growth. In a response to urban sprawl and climate change, New Urbanism emerged in the 1980s to promote a mixed and walkable urban environment,

inspired by traditional, walkable neighborhoods (Duany, Speck, and Lydon 2010). Transit-Oriented Development (TOD) has become New Urbanism's key principle. The aim of TOD is to create living, work, and social environments within a 10-minute (or half-mile) walking distance from transit stations, reducing dependence on driving (Calthorpe 1993). Generating job opportunities and diverse street activities that encourage pedestrian traffic and stimulate the local economy, it is widely considered a model for sustainable urban development. Also, a form-based code, a product of New Urbanism, fosters a high-quality public realm with physical buildings and streetscape and less of a focus on land use. In contrast to conventional Euclidean zoning that separates land uses, the form-based code encourages mixed use and addresses the relationship between building façades and the public realm. Today, cities require sustainable development to support a growing population living in urban areas; according to the UN's report,[4] 89% of the U.S. population and 68% of the world population is projected to live in urban areas by 2050. While TOD is expected to alleviate the environmental and economic issues associated with rapid growth, it can also help urban neighborhoods become more sustainable, people-centered places.

SUBURBAN RETROFIT

The projects of New Urbanism range from infill in the urban center to the transformation of parking lots and underutilized spaces in suburban areas connected to rail or bus transit. Since 2008, an international nonprofit organization, the Congress for New Urbanism (CNU), has led an initiative for sprawl retrofit. The CNU's product "Build a Better Burb" (http://buildabetterburb.org) is an online publication that showcases innovative ideas and practices to improve suburban design and planning. Suburban retrofit starts with reusing underutilized spaces, such as dead or dying strip malls, parking lots, garages, and office parks, into a mix of housing, commercial space, and cultural programs. Along with recycling unused infrastructures, reducing block size is critical to improving walkability in the suburbs. In response to climate change, planning for both cities and suburbs has recently started to include green infrastructure, incorporating rainwater harvesting, stormwater management, and the production of renewable energy.[5]

There are currently more than 2,000 suburban retrofit projects in America (Dunham-Jones and Williamson 2009). These numbers are likely to grow as retail industry declines. Sustainable development and planning can help meet the needs of a wider range of ages by attracting young generations who are migrating from cities. According to the National Association of Realtors' survey conducted in 2017,[6] 62% of millennials prefer to live in a walkable city with multiple transit options. Meanwhile, Myers (2016) claims that the population of millennials in some large U.S. cities such as Chicago, Boston, and Los Angeles, has slightly declined or stopped growing, the result of marriage and consequent need for larger spaces for family. As a result, there is high demand for urban living at affordable rent, and placemaking that combines urban and suburban elements. Design can integrate a diversity of housing, transit, and walkable landscape with larger living and open spaces. When there is local political support and sufficient capital, suburban retrofit can have a powerful effect on the American landscape (Beske and Dixon 2018). In 2018, *D Magazine* noted that more than a dozen Dallas-Fort Worth suburbs, including Plano and Grapevine, are booming with improvements to the street environment; urban planner Scott Polikov says, "suburbs with good bones that were walkable, old Main Streets and streetcar corridors are becoming towns as they are rediscovering the opportunities for daily living with a better walkability, connectivity, small businesses, and a mix of housing."[7]

TACTICAL URBANISM

Over the past decades, public interest in the idea of small-scale, incremental, and tactical urban improvement, known as "Tactical," "pop-up," "do-it-yourself (DIY)" or "guerilla" urbanism has surged (Talen 2015). As a new generation of New Urbanism (https://www.cnu.org/publicsquare/2017/02/16/great-idea-tactical-urbanism), this approach contrasts with conventional top-down urban development, as it promotes small, community-driven, low-cost, and often temporary interventions. Tactical Urbanism typically repurposes abandoned spaces into outdoor public gathering places. For example, the "parklet" converts curbside parking space into an outdoor platform for a café's seating area, pop-up bookstore, gallery, bicycle racks, etc. As part of a "back to the city" movement, small projects, such as pedestrian plazas, parklets, bicycle lanes, and painted street furniture, benefit residents, strengthening a community's ownership of public space in the neighborhood. These small interventions often act as a catalyst for long-term urban design.

After decades of sprawl, the idea of a contemporary "Main Street" that draws on the traditional typology of historic cities and towns has recently become a recognized model for sustainable economic development (Talen and Jeong 2019; Duany, Plater- Zyberk, and Speck 2010; Llewelyn-Davies 2007; Mehta and Bosson 2000). Clusters of independent retailers, mixed-use buildings, public transportation, and walkability are key ingredients for a successful Main Street that fosters economic interdependence, social interaction, and stability (Calthorpe 1993; Ericksen and Ericksen 1979; Duany, Plater-Zyberk, and Speck 2010). In addition, a dense and socially diverse built environment maintains a continuous flow of "eyes on the street" (Jacobs 1961), ensuring pedestrian vitality and interaction. A recent quantitative study (Talen and Jeong 2019) on the street environment in Chicago found that successful, contemporary Main Street blocks have a mix of building age and height, as well as independent, rather than chain, stores. Also, the study revealed that factors degrading to the quality of Main Street, such as parking lots, gas stations, vacant lots and buildings, and automotive shops, are correlated with a low socio-economic status of the neighborhoods.

MAIN STREETS IN DALLAS AND FORT WORTH

Originally built as a streetcar suburb, Bishop Arts District (Figure 4) is one of a few Main Streets in Dallas, that have become pedestrian-based shopping districts. A combination of independent businesses in historic buildings, street arts, and parking regulations create a walkable streetscape. In 2020, dugint the Covid-19 pandemic crisis, a live music venue, Reveler's Hall in the Bishop Arts District, set up a parklet to create an outdoor seating area. The owner of Reveler's Hall, Jason Roberts, found that around 80% of customers have been sitting outside which kept their business alive in a walkable streetscape. Roberts also founded a nonprofit organization called Better Blocks in Oak Cliff. Better Blocks' projects have aimed to reverse the city's autocentric zoning and to create a walkable and vibrant street environment through small-scale parklet projects. Better Blocks' parklets have repurposed vacant storefronts and sidewalks in Dallas and other cities in collaboration with community organizations and business owners. Their interventions, incorporating a mix of design, digital fabrication, and community engagement, typically take up to 120 days. Their custom parklets are expanding outdoor spaces for restaurants, retail, and public space, and help small businesses to increase pedestrian traffic and visitors.

Since 2008, the City of Fort Worth has adopted a new form-based code to promote revitalization with an emphasis on pedestrian-oriented urban form that requires human-scale building height and style as well as streetscape that limits parking. West Magnolia Avenue (Figure 4) in Fairmount-South Side is considered a successful Main Street under the city's revitalization initiative. The street showcases historic and mixed-use buildings housing small businesses, sidewalk trees, bus and bicycle-sharing stations (B-Cycle) with walkable blocks in a 200' grid pattern. In 2008, the street changed from four to two lanes with the addition of a bicycle lane that accommodates pedestrian and bicycle traffic. In 2016, the nonprofit Near Southside Inc. and other organizations created a micro park on a vacant lot as a temporary public space, which was used by the community for children's play and the display of art. The success of the micro park stimulated the creation of other small-scale public spaces, which hosted the Fort Worth's Park(ing) Day, ArtGoggle festival, car-free Open Street event, and Friday on the Green.

PLACEMAKING AND DESIGN FOR ARLINGTON

In the midst of rapid population growth, cities like Arlington that retain a sprawling infrastructural pattern demand adaptive design strategies to drive sustainable urban growth. Located within a walking distance of downtown Arlington, the University of Texas at Arlington (UTA) embodies potential growth in creative jobs and cultural resources. To accommodate young professionals, tech industries, and cultural workers near the campus, downtown Arlington demands placemaking that strengthens the access to jobs and amenities through alternative transit options, mixed housing choices, and public spaces. Our analysis found that sprawl with no public transportation in the city has had a great impact on public health, limiting housing options

Figure 4. Bishop Arts District and Magnolia Avenue

and economic opportunities as well as access to fresh food. As a response to these problems, we propose the implementation of TOD, which would allow the city to 1) introduce public transport, 2) create a new zoning that allows live/work housing to be mixed with commercial buildings, 3) build green infrastructure that reduces impervious surfaces and provides fresh air, and 4) reutilize vacant lots for food and cultural events. Based on this theoretical framework, we suggest future images for the planning of downtown Arlington; we create a regional bus transit network and a local hub for a complete street connected with a pocket art plaza, an eco-bicycle park, and a place for a farmers' market/art festival converted from a surface parking lot.

1. Regional plan: Bus Transit Hubs (Figure 5)

We introduce a new bus network to Arlington to create transit hubs around major clusters connected to the existing Centreport Trinity Railway Express (TRE) station. While the station is the closest public transit between Dallas and Fort Worth, there is no local transit in Arlington that connects to this regional train station. Thus, our proposed bus network would improve the connection by completing the street grid with major intersections. As a result, bus transit hubs would be created around the

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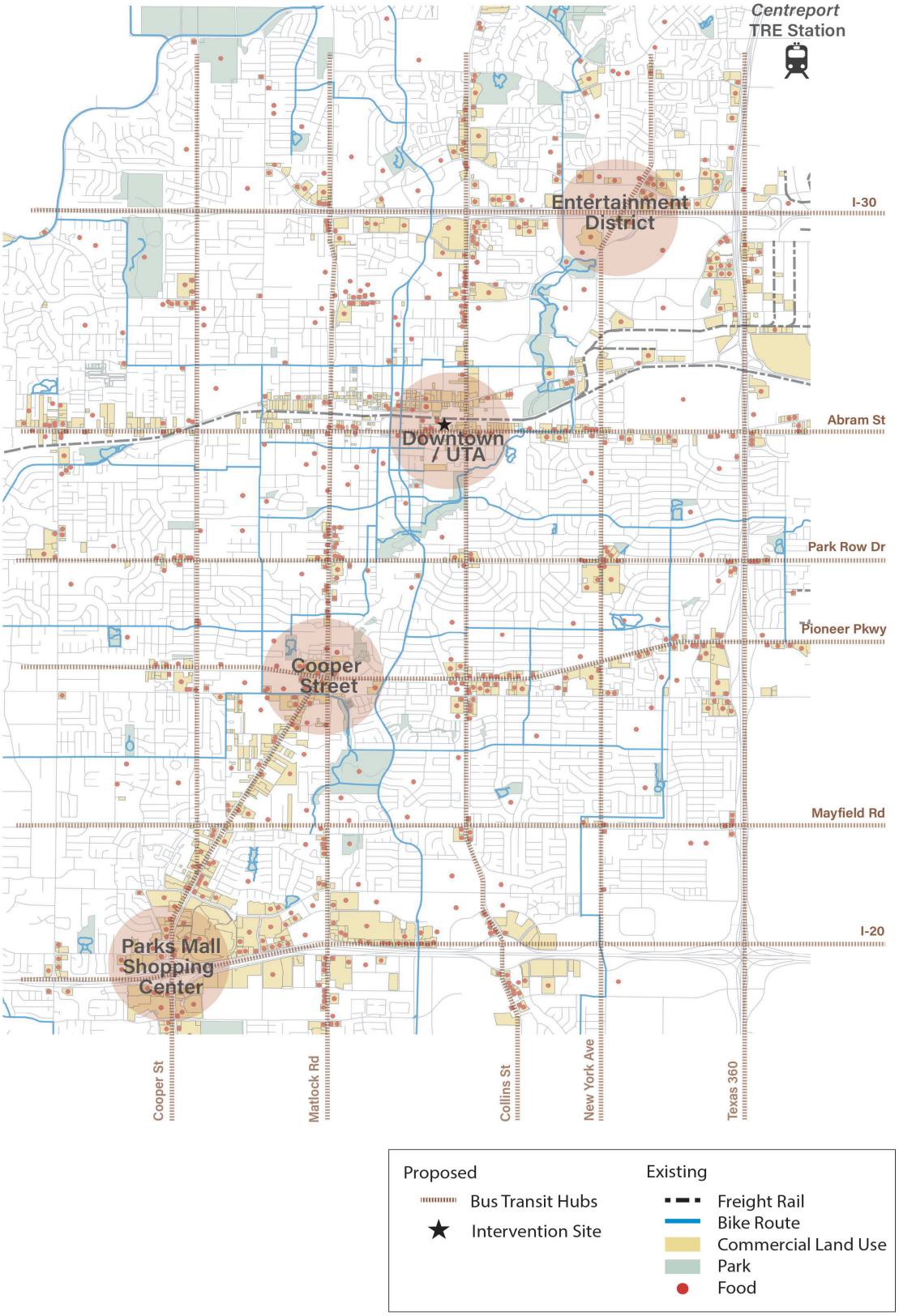


Figure 5. A Proposal for Bus Network and Transit Hubs in Arlington

entertainment district, downtown/UTA campus, Cooper Street, and Parks Mall shopping center.

2. Local Plan: Main Street as a Cultural Destination (Figure 6)

Abram Street in downtown Arlington was once a streetcar corridor during the first half of the 20th century. After the rail track was removed in 1950s, the street has become conducive to automobile uses with wide lanes, surrounded by drive-through and low-density strip malls. As a map in Figure 2 shows, currently 10% of land in downtown Arlington are vacant lots. These vacancies are often disruptive to a pedestrian mobility, resulting in a low walkability and safety of the streets. Therefore, we propose increasing the urban density through a construction of mixed-use buildings, food amenities, and public open spaces. Today, the street has started to grow again with a mix of new construction and some improvement on streetscape through the city's rebuild project. Thus, we envision Abram Street to become a future Main Street which can be a walkable and transit-oriented street with cultural and ecological amenities to enhance a further revitalization. As a local transit corridor, we select three lots in Abram Street that are currently available as a vacant lot or surface parking adjacent to an existing density of food establishment, library, and mixed use buildings.

Prototype A: Transit Mall (Figure 6)

First, we implement the idea of transit mall on the blocks of Abram Street by prioritizing new bus transit and bicycle travel, while activating vacant commercial buildings, empty malls, and parking lots adjacent to the street. As a new bus transit corridor, this brings dense urban landscape and cultural activities that could serve as a local destination for the existing UTA campus and community within walking distance. Also, we add tree-lined sidewalks and medians to create a walkable pedestrian environment along these blocks. With a flexible zoning change that permits a mixed use in the future, a dying strip mall can be repurposed into a live/work space for artists, shop retailers, and entrepreneurs with a possible vertical expansion on the roof for urban farming, outdoor dining, and cultural programs. The addition of programs would help increase in building density and subsequent economic activities with local jobs. In addition, a parking lot, typically attached to a strip mall as a large setback, can be converted into a pocket plaza that incubates street art and community events.

Prototype B: Eco-Bicycle Park (Figure 6)

Second, we propose the creation of an eco-bicycle park, reusing a large surface parking lot on Abram Street. Currently, downtown Arlington lacks a safe place for bicycle as well as green infrastructure with a tree canopy that could mitigate air pollution from vehicular emissions. Therefore, the large parking lot could be reutilized for a green space to improve air quality and promote public health with cycling infrastructures. The structure of an abandoned bank would remain, but will be connected to follies with elevated passages. Follies can integrate a modular system, where the community residents and architecture students at UTA can collaborate in a design and construction process. While follies are iconic structures for community information, the park's ecosystem operates within a permeable landscape, which consists of bioswale, a rain garden, and a water feature, surrounded by recreational and sports programs. Stormwater filteration, trees, and water features will provide natural shade and canopies that reduce the heat island effect in the surrounding area, which is dominated by asphalt. The park will also become an urban oasis to be built and shared by both the community and the university.

Prototype C: Farmers' Market and Art Festival (Figure 6)

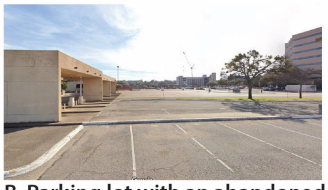
Finally, we envision a surface parking lot as an event space for a weekly farmers' market and art festival. Since downtown Arlington and the university's campus are classified as food deserts, establishing local amenities for fresh produce and agricultural programs is a critical need. While building a grocery store or supermarket can be challenging and take years, food trucks can be an immediate and economical way of hosting a farmers' market or festival by reusing a parking lot. These seasonal and pop-up events are effective and can invigorate the life of public space as both an origin and a destination (Watson 2009) as well as maintain foot traffic in the downtown area. Also, the face-to-face interaction encouraged by these programs reinforces civic trust (Gale 1997). In that respect, these programs help to build a sense of community as a "third place" (Oldenburg 1999) and provide the context for the regular and informal gathering of citizens outside their homes and workplaces.

CONCLUSION

Our study sheds light on an assessment of the feasibility of creating a Main Street in downtown Arlington, learning from the ideas of New Urbanism, TOD, and Tactical Urbanism. The examples of a thriving Main Street in Dallas and Fort Worth, such as Bishop Arts District and Magnolia Avenue in Fort Worth, demonstrate the feasibility of cultural placemaking in Arlington in a similar geographical context within the metroplex. Our studies suggest the need to reimagine the built infrastructure of 1920s streetcar corridors as new foundations for walkable Main Streets and targets for planning initiatives to anchor sustainable urban redevelopment. When the placemaking involves a significant physical transformation in existing buildings, streets, and infrastructure, the presence of mutual community engagement, such as a design workshop, community meeting, and seminars, will be crucial to incremental success. We expect the project both to have local impact and to make important contribution to design strategies for placemaking in the context of urban sprawl.

A. Wide street and a stip mall with a large setback

A. Transit Mall



B. Parking lot with an abandoned drive-through bank

B. Eco-Bicycle Park

C. Surface parking lot

C. Farmer's Market and Art Festival

Figure 6. Proposed Sites on Abram Street for Main Street Placemaking in Downtown Arlington

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