



connectokc
transportation

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INTERSTATE 40 AND THE SKYDANCE BRIDGE
Master planning for the Core to Shore redevelopment and relocation of Interstate 40 placed very high priority on bridging what could have been a barrier, using transportation of all sorts to link Downtown, a new development area, and the Riverfront.





Our Situation

Transportation is Oklahoma City's circulatory system, as critical to the city's life as our circulatory systems are to our own lives. Without the ability to move people and goods from place to place, our city cannot function. But as important as basic mobility is, transportation's influence goes even deeper. It has a huge impact on land value, location of development, and the look and feel of the city. It can expand or limit economic opportunity and affect the cost of public services and the City's ability to provide them efficiently. It even influences public health by encouraging people to move about the city under their own power (or preventing them by creating barriers). It is no wonder that transportation is the largest single component of the City's capital budget. **connectokc** is the transportation element of **planokc**. It considers each component of the transportation network and how they should work together to create a complete system.

Chapter Two introduced the relationship between the transportation system and the land uses and intensities that it both serves and influences. As the city changed over the years, it gradually replaced ways of getting

around that tended to cause people to live and work closer together (walking and streetcars) with the car, which encourages and requires dispersal. The car gives us the independence to go where and when we please. But as we know, relying on auto transportation also produces development patterns that are expensive to serve, congestion on major streets, and harmful emissions into the atmosphere.

It is also clear that transportation preferences are undergoing change both locally and nationally. The share of trips made by on foot or bicycle and by transit is increasing. Young people are getting driver's licenses later. In our city, transit revenues per mile grew steadily through 2012. Our transportation system should respond to meet these changes in the market, especially since more access options produce other benefits.

The Efficiency Growth Scenario (Scenario C), the community's preferred future development direction, recognizes that the car will continue to be Oklahoma City's dominant method of transportation. It also recognizes that it requires a more balanced system, designed to move people rather than cars and to provide choices. Every component of the future

system has a role to play. **connectokc** presents initiatives and policies that will help create this balanced, interconnected access network, designed to create more efficient movement patterns, a healthier community, and new opportunities for economic development.

Streets and Roadways

The street system is our largest public capital asset, and its maintenance and ability to move people and goods safely and efficiently are fundamental to the city's health. Planning for the improvement of our streets must consider condition, connectivity, accommodation of different travel modes, access management, and land use context.

Street condition. Achieving our overall idea of safe and efficient movement for all begins with the street network already in place. In the **planokc** Citizen Survey, the most frequently mentioned transportation priority was repair and rehabilitation of existing streets. Many street segments, including neighborhood streets, require significant repair or resurfacing.

Connectivity and the traffic network. A lack of secondary streets with good connections inhibits our

MIDTOWN STREET DESIGN (RIGHT)

Street design in the Midtown district has produced better pedestrian accommodations through new and wider sidewalks and clear crosswalks, while a surface median in the center lane of 10th Street helps calm traffic.

ability to provide safe and efficient access. Without good neighborhood street links, people making short trips may be forced onto arterials. Mixing local and through traffic adds to congestion and conflicts on our major streets and expressways. We also lack good street connections within many neighborhoods. People like the convenience of cars, but do not like effects like noise, too much traffic, and excessive speeds. So street layouts are often indirect, often use cul-de-sacs, and sometimes have only one way in or out. These designs make responding to emergency responses and providing services harder. We do not design a building with only one exit or with confusing exit routes – we shouldn't design neighborhoods that way either.

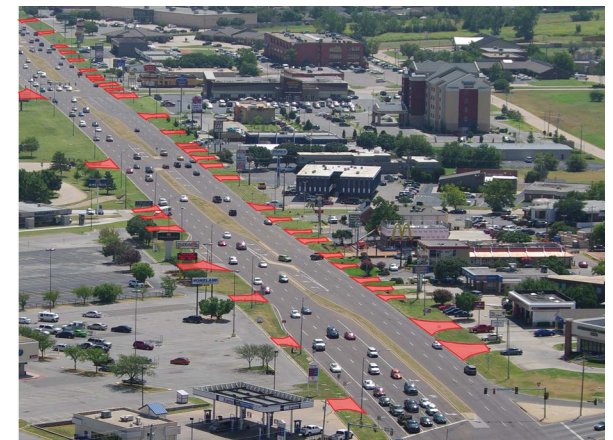
Multi-modal corridors. To meet the mission of moving people, Oklahoma City's streets should accommodate all the ways that people travel. But too often, our streets only serve cars. This does not mean that every street accommodates every form of transportation. But it does mean that the system should provide safe routes for pedestrians and bicyclists, even if they are on parallel or secondary routes.

Access management. Streets operate most efficiently when "friction" – conflicts created when decelerating, accelerating, turning, or other interruptions to the flow – are minimized. Major surface streets both serve through traffic and provide local access to businesses, industries, and homes. These needs must be balanced, but when access is unmanaged – too many driveways, curb cuts, or other points of entry or exit – efficiency drops and the probability of crashes increases.

Land use and street capacity. In discussing the concepts of Land Use and Street Typologies, Chapter



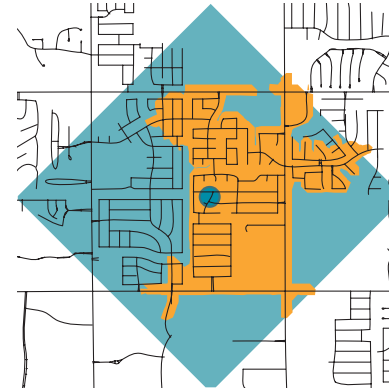
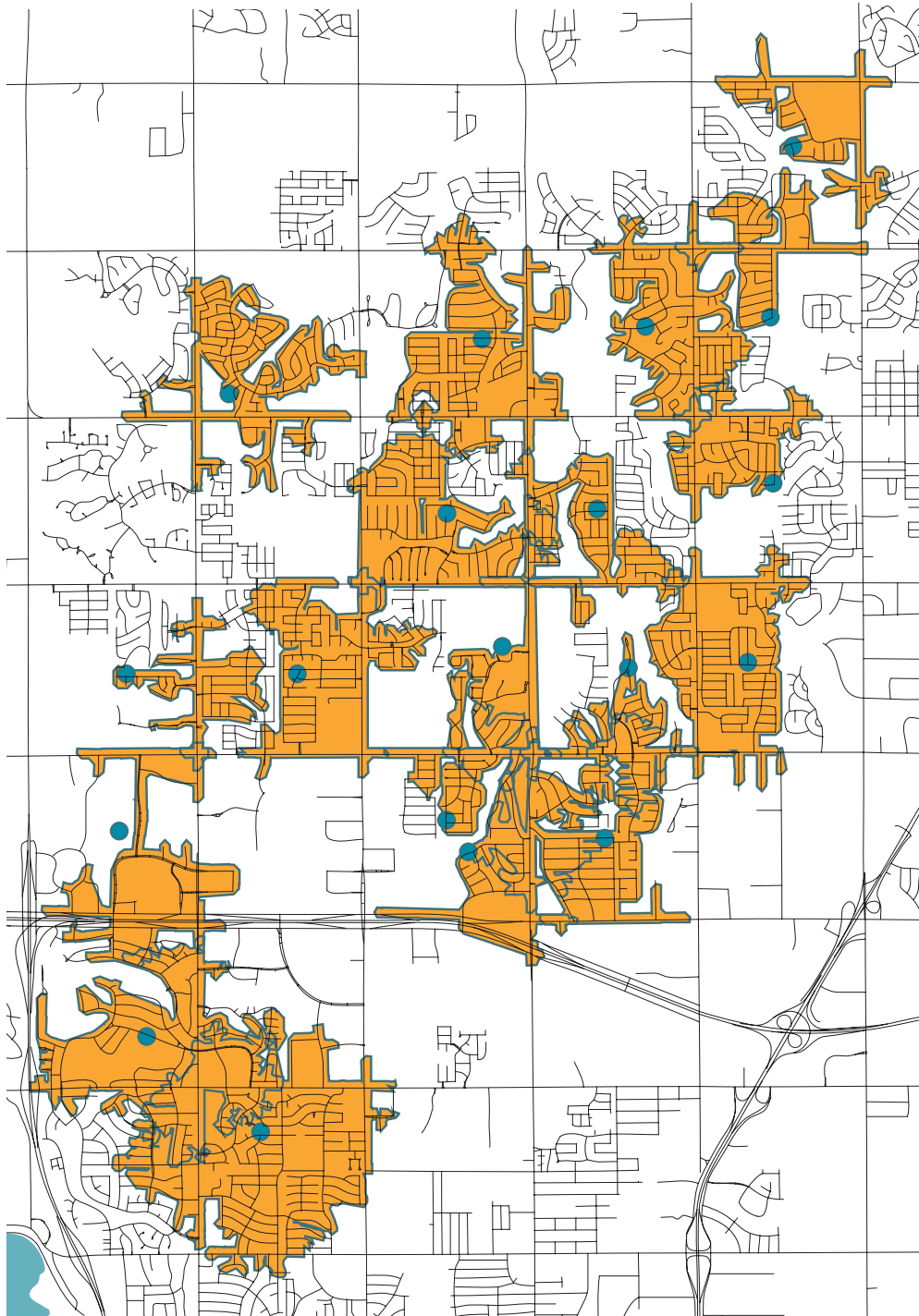
Two made the point that development should be served by the appropriate type of street. Thus, high intensity development should generally locate on or near high capacity streets, and vice versa. While this seems clear, we have many examples to the contrary, especially on the fringe of the city. This, combined with poor street connectivity and lack of alternative routes, leads to further congestion and possible risks in emergency situations.



NORTHWEST EXPRESSWAY

An example of poor access management.

POOR STREET CONNECTIVITY



COMPARING STREET CONNECTIVITY

Examples of poor (left) and good (right) street connectivity in Oklahoma City.

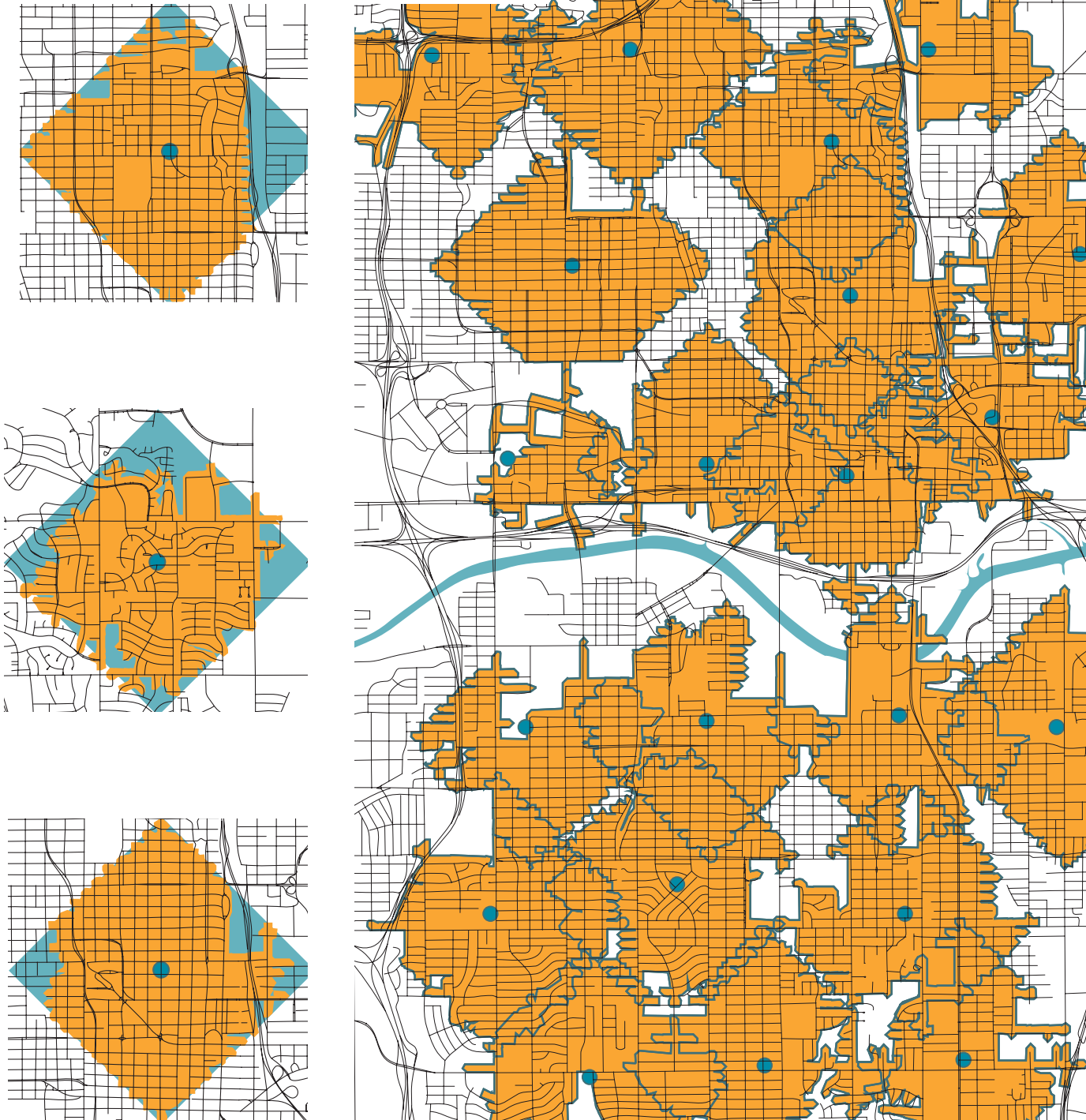
The orange area represents one mile traveled from the blue starting point on the existing road network in any direction.

The blue area represents one mile traveled on a perfectly connected road network from the blue point.

While the individual areas in the examples to the left offer some connections to the arterials, the lack of internal connections limits the areas accessible in a mile of travel on the street network.

The street systems to the right offer better connectivity. The area's accessibility is far greater, dramatically increasing the ability of people to walk and bike to surrounding uses. This also decreases the amount of out-of-direction travel.

GOOD STREET CONNECTIVITY



BENEFITS OF A CONNECTED STREET SYSTEM

Fewer miles driven

Well-connected networked streets provide greater mobility and access. By their very nature, networked streets provide shorter, more direct routes between destinations. This increases the efficiency and reliability of the road network.

Better for Public Safety & Utilities

Increasing route options reduces emergency response time by allowing emergency vehicles more direct access. And having more route options increase the systems resilience by reducing the risk that an area will become inaccessible if a particular part of the roadway is blocked by a traffic accident or an obstacle such as a fallen tree or power line.

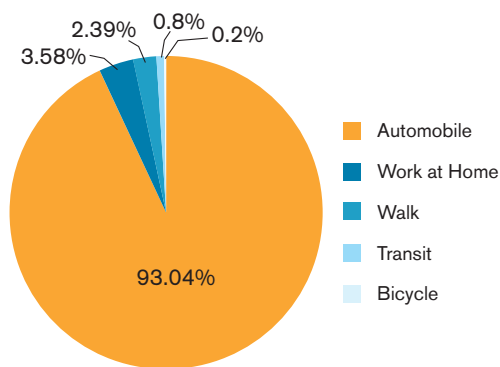
Less congestion

Poorly-networked streets typically concentrate local traffic on a few arterials because there is no other route available—but well-connected street systems encourage area trips to occur on local streets instead of arterials or highways. This preserves capacity on arterials and highways for more regional trips and lessens the need for widening those roads, making more funding available for maintenance of existing streets.

During times of congestion or construction, drivers have more opportunities to switch to different routes and avoid delay. This is especially important for emergency responders as they need the fastest, most direct route to a fire or medical emergency.

Better pedestrian and bicycle access

A connected street system also benefits cyclists and pedestrians. Shorter, more direct trips make alternative modes of travel viable and often, the more desirable choice. This further reduces congestion and has a multitude of public health benefits.



COMMUTER MODE SHARE, 2010

Transit

Public transportation, mostly by electric streetcars, was basic to the early growth of Oklahoma City. Streetcar coverage was largely in the area bound by Eastern and Portland Avenues on the east and west, and North 36th to South 29th on the north and south. After 1947, public transportation converted to bus service and the percent of people using transit declined steadily. By 2010, only 0.8% of commuters used transit for travel to work, lowest among the nation's fifty largest metropolitan areas. However, that long-term trend is beginning to reverse, and the Central Oklahoma Transit and Parking Authority (COTPA), the City agency responsible for public transportation and parking operations, is taking major steps to revitalize transit service.

System re-branding and redesign. In April, 2014, Oklahoma City's transit system rolled out a major re-branding and route reconfiguration, implementing recommendations from the Transit Service Analysis for a streamlined route structure, more direct lines, elimination of non-productive routes, and greater frequency. A modernization of the system brand, now called EMBARK, accompanied these route changes. These changes are also the first step toward accomplishing a key recommendation of the Fixed



TYPES OF TRANSIT PLANNED FOR OKC

Transit passengers are likely to see new types of services as EMBARK and other agencies work to increase the importance of transit to the city's transportation scene.

Enhanced bus is a better version of our existing local buses. They may include more shelters, electronic schedule information, fewer stops, and vehicles with amenities. Like current buses, though, they continue to operate in mixed traffic.

Bus rapid transit (BRT) has some of the characteristics of rail vehicles, including greater capacity, low floor loading, and well-spaced stations. They may have their own lanes or even roadways, and offer significantly faster service than conventional buses.

Modern streetcars operate on rails in streets and usually are powered by electricity in overhead wires. The vehicles usually have substantial capacity and low-floor loading, and are being used frequently as circulators in downtown areas.

Commuter rail typically includes cars either self-propelled or pulled in trains by locomotives, and provide fast, peak hour service between suburbs and central cities. Stations are widely spaced.

Guideway Study (FGS) of 2008, which recommended Enhanced Bus service on the basic route network.

Service Hours. Despite system improvements, our transit system shuts down early and does not operate on Sunday, which is unusual for a city our size. This is the result of limited funding, a small fleet, and relatively low rider density. But ridership trends are changing, and are likely to change more with the coming of high density urban developments like in the Core to Shore area. Limited hours also limit access to jobs for off-hour workers, although services other than fixed route buses are often more efficient for these trips.

Geographic Coverage. EMBARK's service area is spread over 244 square miles, which spreads its small

bus fleet over a very large territory. Many parts of the city do not have good transit potential, lacking the density or general preferences necessary to support transit. However, other areas have significant potential, including employment concentrations and urban districts with appeal to both residents and visitors like Will Rogers International Airport, Paseo, Stockyards, Capitol Hill, Asian District, and Stockyards.

Support infrastructure. The weak link in most transit systems is the waiting period at stops or during transfers between routes. Critical elements include shelter from the elements, lighting for security, information about routes and the times of upcoming arrivals, and good pedestrian access to stops. This is especially true in Oklahoma City, where many trips require passengers to use two or even more routes.

New technologies. As of 2014, Oklahoma City's transit service is provided by fixed route local buses, some rush hour commuter expresses, and supporting paratransit. This will be changing. MAPS 3 includes funding for a modern streetcar to serve Downtown and Midtown. The Fixed Guideway Study proposes Bus Rapid Transit (BRT) service on three major corridors, enhanced bus service on the basic system, and commuter rail on a corridor between Edmond and Norman. A transit hub is also planned at the current Santa Fe station on Gaylord Boulevard. These changes as they occur are certain to change routes, schedules, and the market for public transportation.

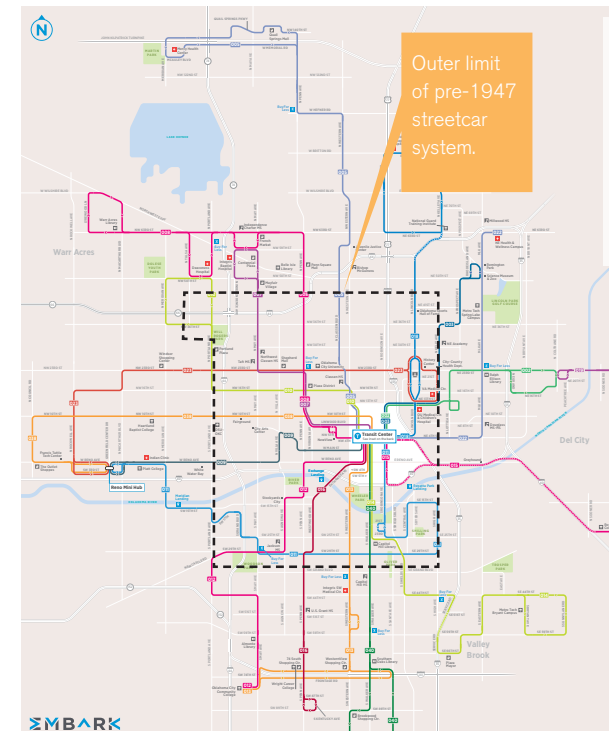
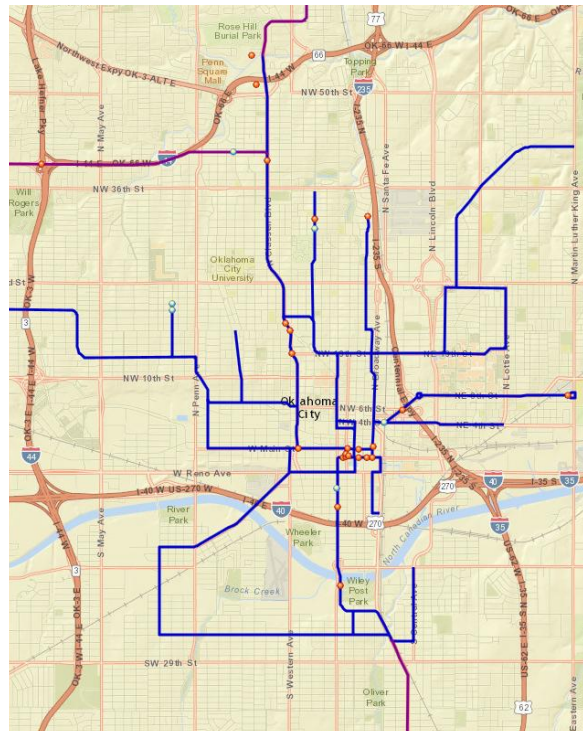
Multi-modal access. The "active transportation" umbrella usually includes public transportation because most people have to walk or bike to bus stops or transit centers. A traditional problem for transit has been the trip from home at the beginning of the trip or to the destination at the end. For people walking to stops, the typical service corridor is limited to one-fourth mile on either side of the line. Bicycles can increase this distance, but facilities are needed to encourage their use.

Density. Low density is an issue for many transit systems and is seen as a particular problem in Oklahoma City, with its gross density of only about 1,000 people per square mile. However, it is important to realize that this is an average, and that some areas and corridors have densities that support transit. In addition, the Efficiency Scenario, supported by the community and consumer preferences, and identified by both the Housing and Community Appearance surveys, suggests redevelopment and new growth at higher densities.

TRANSIT MODES

Right: Bus rapid transit in street operation in Boston.

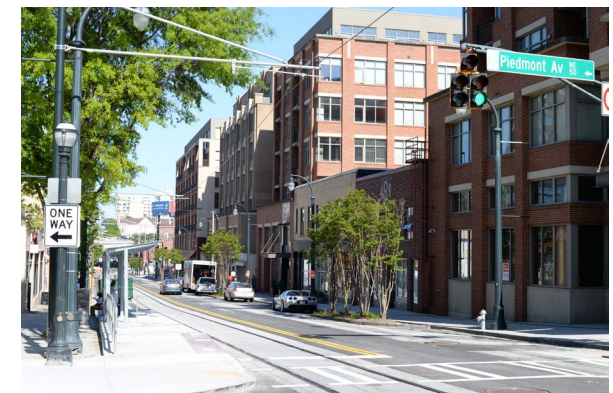
Far Right: Modern streetcar right of way on Auburn Avenue in Atlanta.



OKLAHOMA CITY TRANSIT MAPS

Right: The extent of public transportation service, largely provided by streetcars, to 1947.

Left: The EMBARK system implemented in April, 2014, showing the extent of the original streetcar network.



Bicycle Facilities

As a means of transportation, the bicycle is highly flexible, uses only the fuel created by its operator, makes little noise, and is capable of moving at traffic speeds in many urban situations.

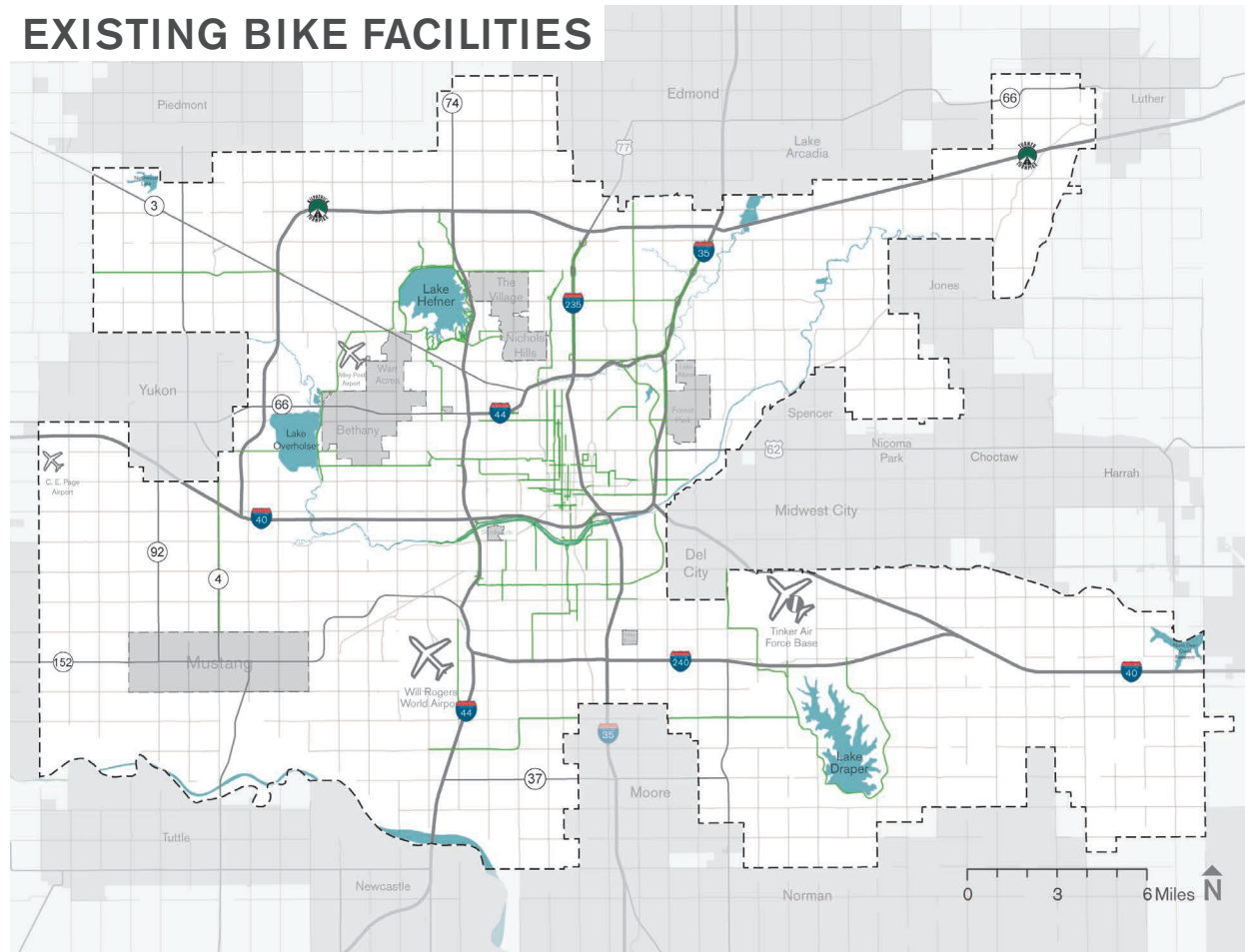
Lack of continuity. We have made progress toward increasing the role of bicycles in our transportation system. Two examples of this progress are the Katy Trail on the east side and bike lanes on Shartel Avenue. A true network should provide routes that lead without interruption to important destinations. The Shartel bikeway, for example, ends on the north at Interstate 44, forcing cyclists continuing north onto busy arterials.

Coverage. Riding a bike for at least short trips can be an efficient option for most people. Therefore, an effective network should serve every appropriate part of the city. The type of infrastructure will change from one area to another, depending on the density of housing and destinations and the character of the street system.

Connections and user comfort and capability.

Because most bicycle routes will use streets, good connectivity within and between neighborhoods will also help produce a good bicycle network. Lower-volume streets that lead to destinations are especially important because they provide safe and comfortable routes. When poor street connectivity forces cyclists to busier roads that feel less safe and more stressful, the number of people who consider bicycling for transportation drops. Some experienced cyclists operate confidently in all types of traffic, but many prospective cyclists are much less comfortable. Potential growth for bicycle transportation rests with this "interested but concerned" group, which responds well to facilities like bike lanes, cycle tracks, and

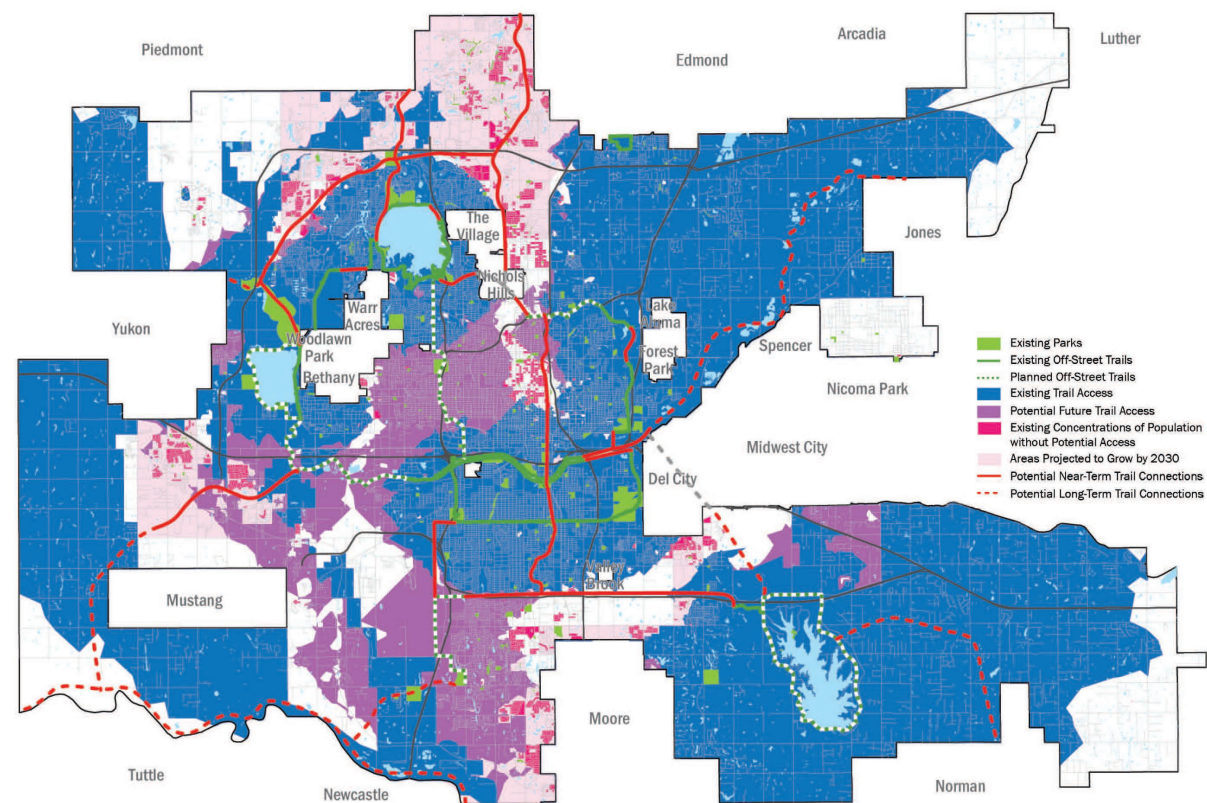
EXISTING BIKE FACILITIES



ABOVE

Existing Trail & Bicycle Facilities: Bike Routes, Lanes, and Trails. While facilities exist, they are disconnected and do not serve many parts of the city.





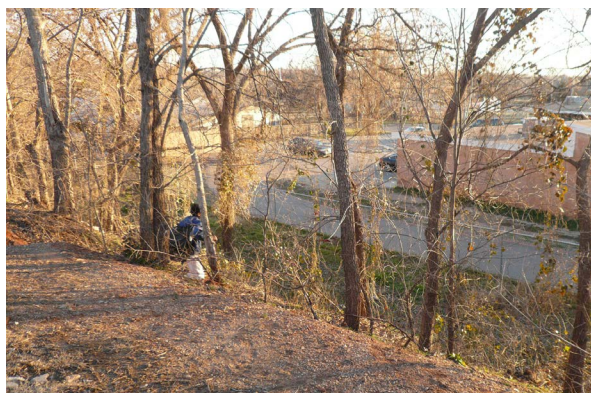
well-designed paths that provide greater separation between cars and bikes.

Support facilities. In addition to routes and street adaptation, support facilities are also needed to encourage bicycle transportation. These include convenient bike parking and storage, wayfinding information, and bicycle-sensitive sensors at traffic signals. When these features are lacking, unintended problems occur. For example, bicyclists often respond to a lack of signal detection by going through red lights, which in turn creates bad habits and a poor public perception. Without parking, bicycles are parked in places that can present obstacles to pedestrians and damage to trees and property. On the other hand, providing these features suggests that bicycles belong as an important part of the transportation network.

Safety education. Motorists and bicyclists are too often unaware of their respective legal requirements and responsibilities, and the rules of etiquette in sharing road space. This leads to conflicts and even injury when road rage results. This can be especially true in a city like ours, where bicycling for transportation is still relatively uncommon and some motorists are unaware or even hostile to cyclists.

Trails

Trails and multi-use paths are important resources for both bicyclists and pedestrians, and serve basic transportation and recreational needs. A major purpose of trails is the provision of access to parks and recreational attractions. Trails fall within the comfort level and capabilities of a wide range of people because of their separation from motor vehicles and easy grades. But they also present challenges.



ABOVE

Existing trails and served areas. Major parts of the central city are not currently served by trails.

LEFT

Student using the Katy Trail to get to an elementary school must climb down a bank because of lack of connections.

Disconnected trails. The city has about 70 miles of trail in six major trail corridors: the Oklahoma River, Katy, South Grand, Bert Cooper (Lake Hefner), Hefner-Overholser, and Tinker-Draper Trails, and lakeside trails around Lakes Hefner and at Lake Overholser. MAPS 3 will help link these into a citywide loop by adding the West River Trail, connecting the River Trail and Lake Overholser; linking Lake Hefner with the Riverfront; and a trail around Lake Stanley Draper. Some major trails remain separated from the rest of the network, and local links from on-street routes are missing.

Links to surrounding neighborhoods and destinations. To provide access to destinations, trails should have frequent and convenient links to local streets, adjacent neighborhoods, and logical destinations like schools and shopping. Some of our existing trail corridors have characteristics that make these linkages relatively difficult. These problems include use of former railbeds on elevated embankments (the Katy) or infrequent connections to bridges or neighborhood streets (the Oklahoma River). Ramps and access points along all trails both increase their usefulness and create safer environments for the trail user.

User conflicts. Trails serve a variety of users, including pedestrians (on both two and four legs), bicyclists, and in-line skaters. These user groups operate at different speeds, and sometimes lack consideration for each other. In some cities with heavy user volumes, heavily used trails have been divided into pedestrian and bicycle tracks. At present, this does not seem necessary in Oklahoma City, but better connectedness may generate heavier future use.

Trail design and support facilities. Effective trail design involves much more than a linear path. Because trails are often separated from streets and hidden from casual public view, emergency communications



ABOVE

The Katy Trail (top), a major initiative completed since 2008. Also pictured is a bicyclist on the South Grand Boulevard Trail.



TRACKS

Separate bicycle and pedestrian tracks on a heavily used trail. (University Avenue in Boulder, CO)

and locators become very important. Trail users need wayfinders, mileage markers, and standardized signage to orient themselves. Intersection design requires careful design consideration, particularly in situations with unusual potential for conflicts like median paths (Grand Boulevard) or sidepaths (wide multi-use paths along streets).

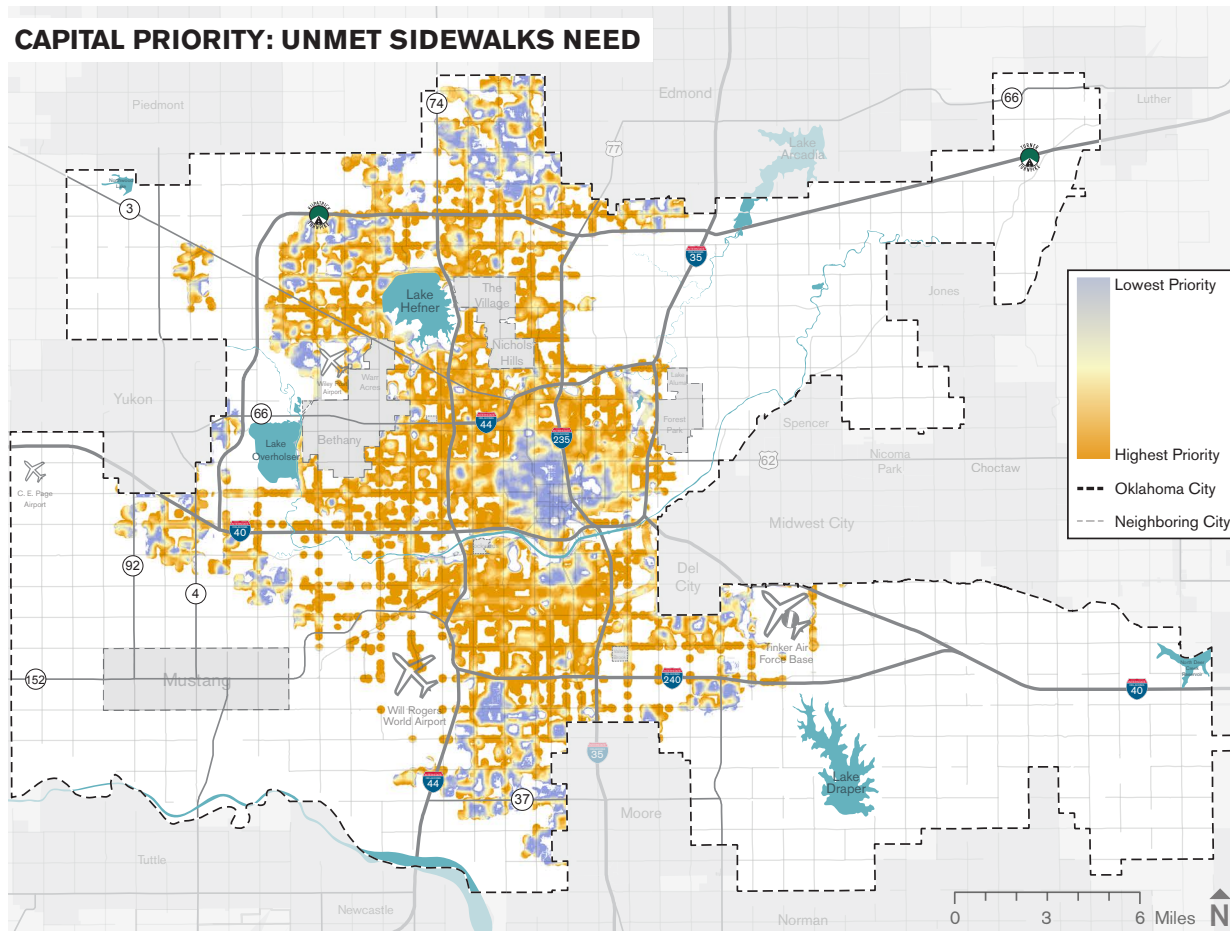
Funding for capital development and maintenance. Trails in Oklahoma City are normally considered to be recreational facilities and compete with parks for scarce maintenance funding. Capital development is also expensive and competes with other priorities for limited local and federal funding.

Sidewalks

Sidewalks are the core of the city's pedestrian system and serve a variety of functions, including routes to schools and parks, short distance travel within neighborhoods and to convenience services, recreational walking, and trips to one or more destinations after parking or leaving a bus. A web of continuous sidewalks in a neighborhood is necessary to provide full pedestrian mobility, but only some of the city's areas display this kind of service.

Limited areas of service. Most of Oklahoma City has poor sidewalk coverage or no sidewalks at all. Reasonably good networks occur in the traditional city core and in new neighborhoods where relatively recent subdivision regulations now require sidewalks along streets. But in the intervening period, pedestrian circulation was generally not valued and, in an automobile culture, developers and even the City viewed sidewalks as an unnecessary expense.

Condition. Even where sidewalks are present, data on their condition, safety, and usability are limited. Problems such as deteriorating paving, tree roots, obstructions, and lack of ADA accessible intersection crossings are not well documented, making it difficult



OKC SIDEWALK SYSTEM

Oklahoma City's sidewalk system. Areas of good coverage include the city core, scattered neighborhoods, and newer subdivisions where sidewalks are now required.

SIDEWALK CONDITIONS

From top: improved sidewalks along 23rd Street improve walkability and support revitalization efforts; and a major arterial corridor without sidewalks or other pedestrian access.

to allocate rehabilitation resources efficiently or toward specific priority areas. The MAPS 3 sidewalk master plan has established a system to evaluate sidewalk conditions and set priorities.

Funding. Traditionally, sidewalks were regarded as a benefit to adjacent property owners and their construction is funded by special assessments. Because property owners typically do not want to pay these costs, gaps remain unfilled and sidewalk segments missing or in poor condition. Also, while property owners normally are required to maintain sidewalks, these responsibilities are not clear and rarely enforced.

Barriers to full pedestrian access. When sidewalks do exist, barriers like busy streets, difficult intersections, lack of signals, and freeways can block natural pedestrian routes.

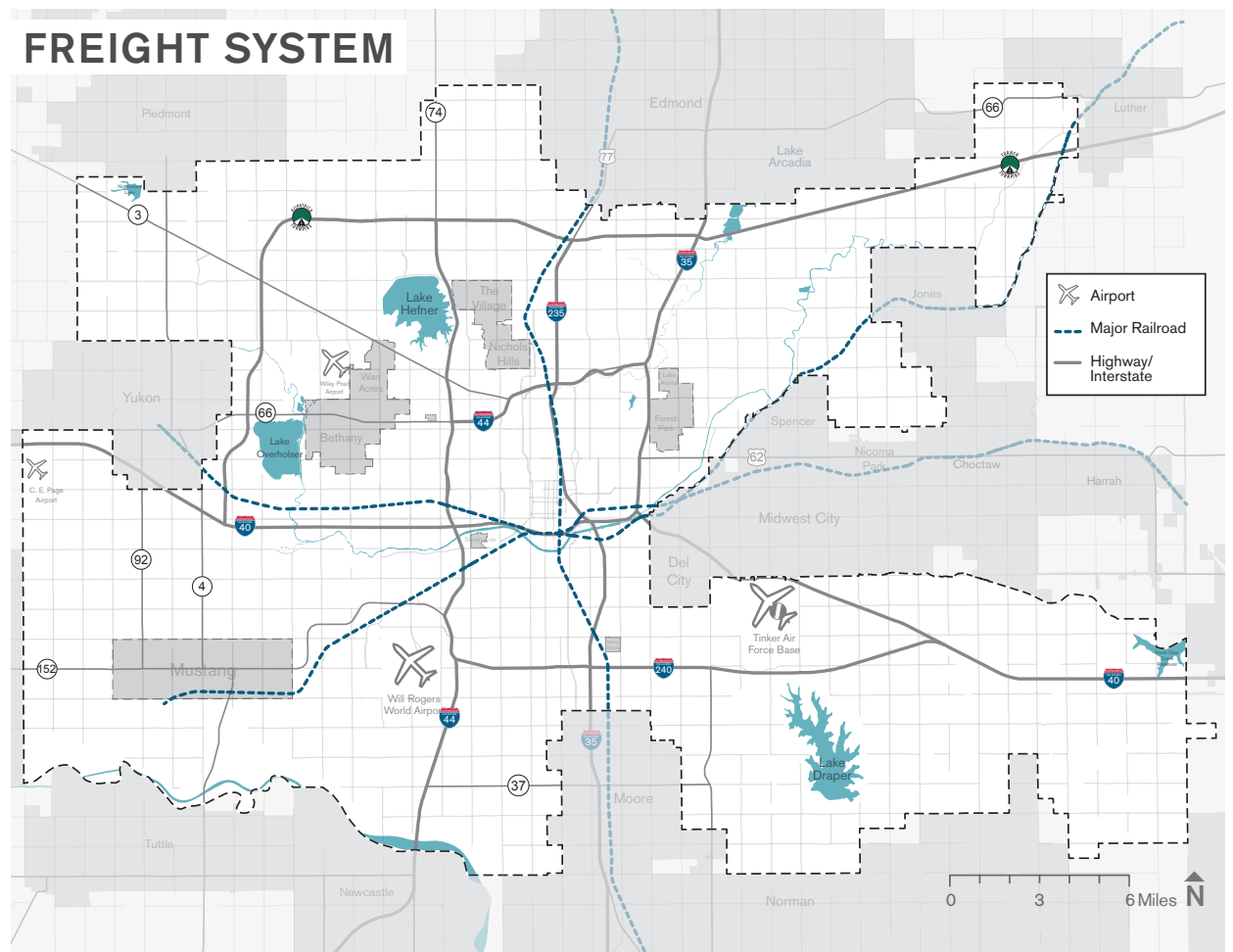
Airports

Oklahoma City's Will Rogers World Airport is an excellent facility that is experiencing increasing traffic. However, the only practical access to the airport is by car. One local bus route served the airport, but this failed to meet the needs of either employees or airline passengers.

Freight

Issues related to freight movements largely center around rail service and its impact on aspects of the City's transportation network.

North-south rail volumes. The north-south Burlington Northern Santa Fe main line is the highest volume rail freight corridor through the city, and also is the route of the Heartland Flyer, Amtrak's only service to Oklahoma City. Increasing freight loads are expected to degrade service by 2035. Maintaining a good service level will require increased capacity along this corridor. In addition, the Fixed Guideway Study



RAILROADS

Right: Amtrak's Heartland Flyer between Oklahoma City and Fort Worth, the state's only current passenger rail service.



identifies the Edmond-Norman north-south corridor as the highest demand corridor for commuter rail, also requiring additional capacity.

Intermodal Facility. Oklahoma City, at the junction of three major interstate highways and the nation's two largest railroads, presents tremendous potential for an intermodal freight hub. The city lacks a crane equipped facility along a major rail line with close access to the interstate system, and has not identified a potential site for such a facility.

Local impact. While some railroad crossings are grade-separated and allow relatively free flow of local traffic, surface crossings interrupt traffic patterns – a problem likely to grow worse as freight loads increase with more frequent, longer trains. These interruptions also affect neighborhoods by creating noise, safety issues, and presenting barriers between residential areas.

Our Plan

Our goal for achieving a connected Oklahoma City is based on recognizing transportation's key role in making our city work. We understand that private motor vehicles are and will continue to be the dominant way of moving people and goods around the city. Maintaining the condition and functionality of our street system is our primary priority. We must compliment this priority by promoting and investing in other transportation choices - a sound, contemporary transit system and an effective network that encourages people to walk or bike for basic transportation. In 2010, only 3.4% of total trips to work were made by transit, walking, or biking. If this percentage were increased to only 10% (with nine of ten trips still made by automobile), the impact on the character and density of the city would be enormous, helping to bring about the benefits, efficiencies, and opportunities envisioned by the development vision of Chapter Two of **planokc**.

Our Goals

TRANSPORTATION SYSTEM

1. Oklahoma City's transportation system is safe, convenient, and provides a variety of interconnected modes.

ROADWAYS

2. Oklahoma City's street system is well-maintained and provides for the safe and efficient movement of people.

TRANSIT

3. People have convenient access to an efficient and effective transit system that connects them to their daily activities and is valued as a public benefit.

BICYCLE FACILITIES

4. The bicycle is used as a form of transportation in Oklahoma City by riders of all levels of experience.
5. The bicycle culture in Oklahoma City is characterized by complete facilities, quality amenities and safe vehicle operator (cyclists and drivers) attitudes and behaviors.

TRAILS

6. Trails are accessible and connect neighborhoods to places citizens want to go and provide a safe, healthy transportation alternative.

SIDEWALKS

7. Oklahoma City has a complete, accessible, and well-maintained network of sidewalks that people use to recreate and get to work, school, shopping, transit, and parks.

AIRPORTS

8. People have multiple transportation options to get to and from Oklahoma City's airports.

FREIGHT

9. Oklahoma City's freight facilities move consumer goods safely and efficiently through out the city and connect the local economy to the global marketplace.

Our Initiatives

connectokc Initiatives	connectokc Goals								
	1	2	3	4	5	6	7	8	9
1. Coordinate street and land use plans.	■	■							
2. Implement street connectivity standards.	■	■	■		■		■		
3. Establish a neighborhood street program.	■	■							
4. Create multi-modal corridors.	■	■	■		■		■		
5. Manage access on major streets.	■	■							
6. Establish a regional transit authority.	■		■						
7. Implement major transit improvement plans.	■		■					■	
8. Interconnect transit with other modes.	■		■	■			■	■	
9. Design for transit access.	■		■				■		
10. Provide transit to airport.	■		■					■	
11. Create a destination-based priority bike network.	■			■	■	■			
12. Meet annual new bike facility goals.	■				■	■			
13. Remove barriers to continuity.	■			■	■	■			
14. Establish a bicycle-friendly culture.	■			■	■				
15. Update and implement the Trail Master Plan.	■			■		■			
16. Provide funding for trails.	■					■			
17. Improve trail access to streets and destinations.	■					■			
18. Develop a major pedestrian system plan.	■					■			
19. Implement street and land use typology standards.	■	■	■	■	■		■		
20. Provide clear funding and responsibilities for sidewalks.	■						■		
21. Plan for increased north-south rail capacity and freight infrastructure.	■								■

"In the pursuit of comfort and wealth, we have managed to design physical activity out of everyday life. Rather than make the healthy choice the easy choice, we make it the hard one. Through ample research, we know that the built environment has a profound influence on health. It's not the only factor, but it's an important one."

(High level real estate and public) leaders recognize the importance of infrastructure in shaping real estate development, and they identified public transit and pedestrian infrastructure, including sidewalks, along with roads and bridges, as top investment priorities."

- Rachel MacCleery
Executive Vice-President
Urban Land Institute

A street is a spatial entity and not the residue between buildings.

- Anonymous

The role of the street is social as well as utilitarian.

- Andres Duany

The street system is our largest transportation asset and serves the access needs of the vast majority of our residents. While the system is built to accommodate motor vehicles, its real function is to move people. Our initiatives and policies are designed to ensure the safe operation of this system, accommodate all forms of mobility, and advance the city's overall development goals.

Growing urban populations will demand that their streets serve not only as corridors for the conveyance of people, goods, and services, but as front yards, parks, playgrounds, and public spaces. Streets must be safe, sustainable, resilient, multi-modal, and economically beneficial, all while accommodating traffic.

- Urban Street Design Guide
National Association of City Transportation Officials,
2013

INITIATIVE 1

COORDINATE STREET AND LAND USE PLANS

We will ensure that street improvements and expansions to the network serve the development vision of planokc. The Land Use Plan, the foundation of planokc, is based on efficient use of land resources, and incremental, market-based extensions of urban development. Road construction projects in undeveloped areas can have the opposite effect by encouraging decentralized development. Both city and regional road plans should reinforce the vision of efficiency by focusing on enhancing the existing network, addressing areas of congestion and poor operation, increasing network connectivity and route

choice, and using new street extensions to guide development in desirable directions.

We will implement the street typology concept. The street typologies combine the function and context of streets to produce design standards. Our subdivision ordinances and design practices should be amended to be consistent with these standards. Different land uses and intensities of development also require streets with the ability to handle the traffic they generate. Therefore, new development should be located on streets of appropriate type and capacity, or include measures necessary to supply the required capacity.

Policies C-1, C-2, C-3, C-4, C-7, C-9, C-31, C-40, C-43, and ST-30 implement this initiative.

INITIATIVE 2

IMPLEMENT STREET CONNECTIVITY STANDARDS

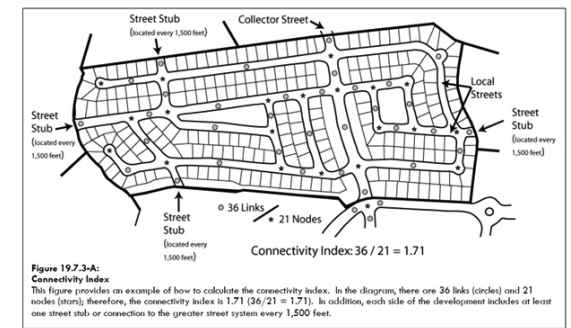
We will provide good street connections within and between neighborhoods to provide a choice of routes and separate local traffic from major arterials. Good street connectivity has many benefits. By providing alternative routes for short distance trips, it indirectly increases the capacity of arterial streets. It also provides better quiet street opportunities for pedestrians and bicyclists, and improves the efficiency of delivering emergency access and city services.

Policies C-8, C-10, C-11, C-12, C-29, L-3, and SE-3 implement this initiative.

INITIATIVE 3

ESTABLISH A NEIGHBORHOOD STREET PROGRAM

We will establish a systematic neighborhood street program, focused on rehabilitation, traffic calming, and safety and functional improvements. Citizens place a high priority on the condition and repair of the existing street system. The streets that affect residents most – local and connector streets – are rarely addressed



All developments required to achieve a connectivity index score must do so in accordance with the following table:

TABLE 19.7.3-1: MINIMUM CONNECTIVITY INDEX SCORE	
BASE ZONING DISTRICT	MINIMUM INDEX SCORE
RS-1, RS-2, DH, RMH, PS	1.4
RS-4, RS-5, RS-8, RM-10, RM-16	1.5
RH-24, RH-36, MC, MR, MN, PC	1.65

Street connectivity index calculator from the City of Henderson, NV

EVALUATING STREET CONNECTIVITY IN DEVELOPMENTS:

Systems have been developed to provide ways of measuring street connectivity. These can then be incorporated into development regulations and provide objective standards for new projects. Two of these systems are the Route Directness Index (RDI) developed by Transpo Group and the Street Connectivity Index.

The RDI calculates direct travel distance by actual travel distance on a 0 to 1 scale. For example, if two places are a mile apart "as the crow flies" but the actual travel distance along city streets is two miles, the RDI equals 0.50. The developers of the concept estimate that an acceptable minimum RDI is between 0.6 and 0.7.

The Connectivity Index establishes nodes (such as intersections and cul-de-sac ends) and links (street segments that connect any two nodes), and divides the number of links by the number of nodes. An index of about 1.40 is considered a good standard.

by normal transportation programs. A systematic neighborhood street program will both provide regular funding for street repair and rehabilitation and completion of special street projects such as traffic calming.

Policies C-5, L-37, L-42, and SE-3 implement this initiative.

INITIATIVE 4

CREATE MULTI-MODAL CORRIDORS

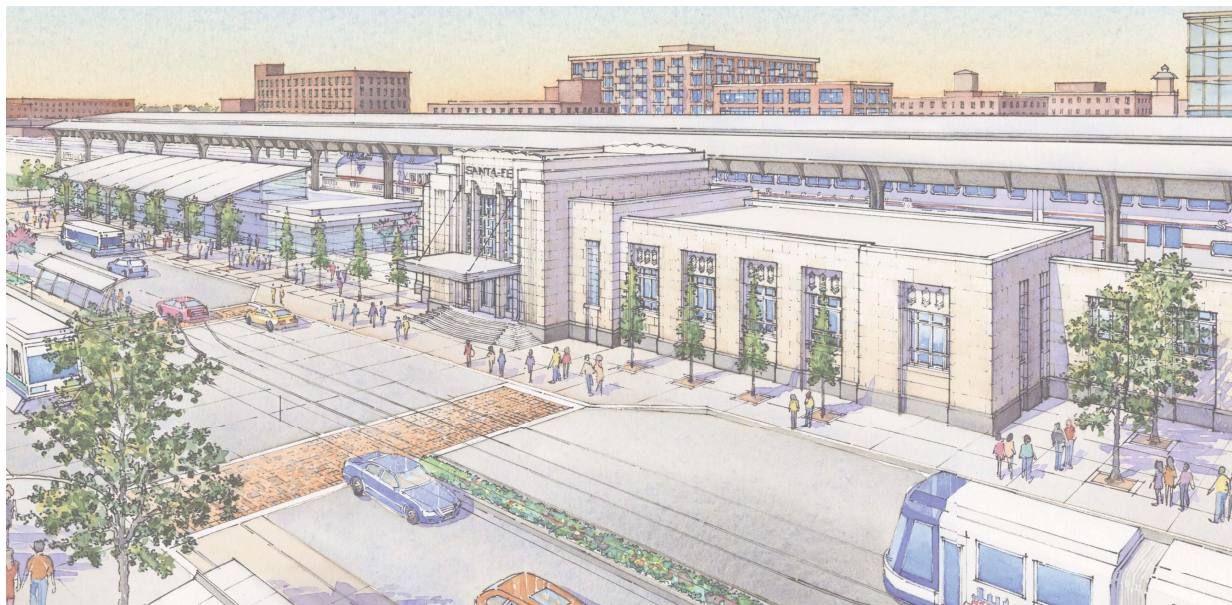
We will incorporate all appropriate forms of transportation into major street and land use corridors. Major corridors provide access to important community destinations, including shopping centers, civic institutions, and employment centers. Multi-modal corridors do not require every form of transportation on every major street. Rather, the corridor taken broadly provides access for all modes of transportation to destinations along the way. For example, service roads, local streets, trails, or other paths parallel to arterials can accommodate local transit, pedestrians, and bicyclists comfortably. The concept of multi-modal corridors also requires that projects that change or expand the motor vehicle capacity of major streets and roads accommodate transit and active modes in the final design and during the construction process.

Policies C-3, C-6, C-22, and SE-9 implement this initiative.

INITIATIVE 5

MANAGE ACCESS ON MAJOR STREETS

We will maximize the safety and efficiency of arterials by developing and implementing new standards and strategic access management projects. New design standards and practices should reduce the number of driveway cuts on streets, encourage shared access points, develop properly designed service roads where appropriate, and align curb cuts across streets wherever possible. These changes are usually good for business because they increase the



SANTA FE DEPOT

Renderings of the proposed transit hub at the former Santa Fe Depot. This project implements the recommendation of the Transit Hub Study and will serve conventional buses and BRT, modern streetcar, Amtrak, and future commuter rail service.

efficiency of parking, reduce crashes and conflict points, and reduce stress on customers and motorists.

Policies C-13, C-28, C-30, C-31, C-32, SU-27, and SU-47 implement this initiative.

In our development vision, public transit must play a larger role in Oklahoma City's transportation network. Currently, we rank last among the nation's fifty largest cities in the percent of workers using transit for their work trip. Oklahoma City residents have expressed a need for better transit, more focused around potential markets, and major initiatives are underway to increase the visibility and utility of our services. But these changes by themselves, will not take full advantage of the ability of transit to improve access to the city's features and economic opportunities.

INITIATIVE 6

ESTABLISH A REGIONAL TRANSIT AUTHORITY

We will work to establish a regional authority for financing and operating transit in the Oklahoma City metropolitan area. Providing a quality public transportation service requires a reliable funding source. The need for and benefits of public transportation do not stop at the borders of Oklahoma City. Effective transit benefits the region in several ways, including providing direct services in and to surrounding cities and opening street and highway capacity for suburban commuters who do not use transit. A metropolitan authority can coordinate current regional services and expand into areas like commuter rail. Most importantly, it can provide a dedicated and stable source of funding – necessary for fully realizing transit initiatives recommended by the Fixed Guideway and Transit Analysis studies.

Policy C-35 implements this initiative.

INITIATIVE 7

IMPLEMENT MAJOR TRANSIT IMPROVEMENT PLANS

We will implement the general recommendations of the **Transportation Service Analysis (TSA)** and the **Fixed Guideway Study (FGS)**. These two studies together define a transit future for Oklahoma City. The Service Analysis addresses enhancements of the existing bus system while the FGS provides a long-term direction that introduces new transit technologies. We have begun implementing elements of both studies. The restructured EMBARK system has made the substantial short-term route adjustments and re-imaging recommended by the TSA. The MAPS 3 program, approved by the voters, includes capital funding for a modern streetcar serving the Downtown area, a major recommendation of the FGS. Both projects will change the image and visibility of transit in the city.

The TSA established basic principles to guide short-term adjustments and longer-term system design. These guiding principles include simplicity of service, directness of routes, minimized transfer waits, operation along arterials, route symmetry in both directions, and service to rider destinations. Key long-term recommendations include weekend service expanded evening hours, and more frequent service on routes with high ridership potential. These service expansions are vital to expanding the relevance of transit to more people. The analysis also recommends new routes with available funds, including a direct service to the airport. New service should also serve destinations of special interest to both residents and visitors, using routes that will appeal to specific markets.

The FGS proposes a future system utilizing four technologies:

1. Enhanced bus on the basic system, using conventional buses with more frequent service, longer operating hours, rider amenities such as shelters and schedule information at stops, less frequent stops, and faster operating speeds.

2. Bus rapid transit (BRT) on four corridors: Reno Avenue, Northwest Expressway, 59th Street, and Meridian Avenue.
3. Modern streetcar, to be implemented on a starter basis through MAPS 3 as noted earlier.
4. Commuter rail on two corridors: the primary north-south route from Edmond to Norman via Downtown Oklahoma City and Downtown to Midwest City/Tinker Air Force Base.

Scheduling and funding for this 2008 study must be re-evaluated, but the basic long-term system concept remains sound.

Policies C-36, C-37, C-38, and C-39 implement this initiative.

INITIATIVE 8

INTERCONNECT TRANSIT WITH OTHER MODES

We will develop facilities that encourage people to use other means of transportation to travel to transit stops and stations. The traditional service area around a transit route is a 1/4 mile walking distance. We should maintain clear and continuous pedestrian routes within that service area to transit stops or stations. Safe, comfortable, and attractive shelters and waiting areas should be located at strategic points along routes. Providing features that encourage people to bike or drive to stops and stations can extend these service areas and increase the number of potential riders. These features can include:

- Connections from trails to transit stops.
- Bike parking, lockers, and potentially rental stations at major transit stops and hubs.
- Park and ride facilities such as lots and structures, integrated into transit-oriented developments or at appropriate commuter sites.

Policies C-34 and SE-9 implement this initiative.



INITIATIVE 9

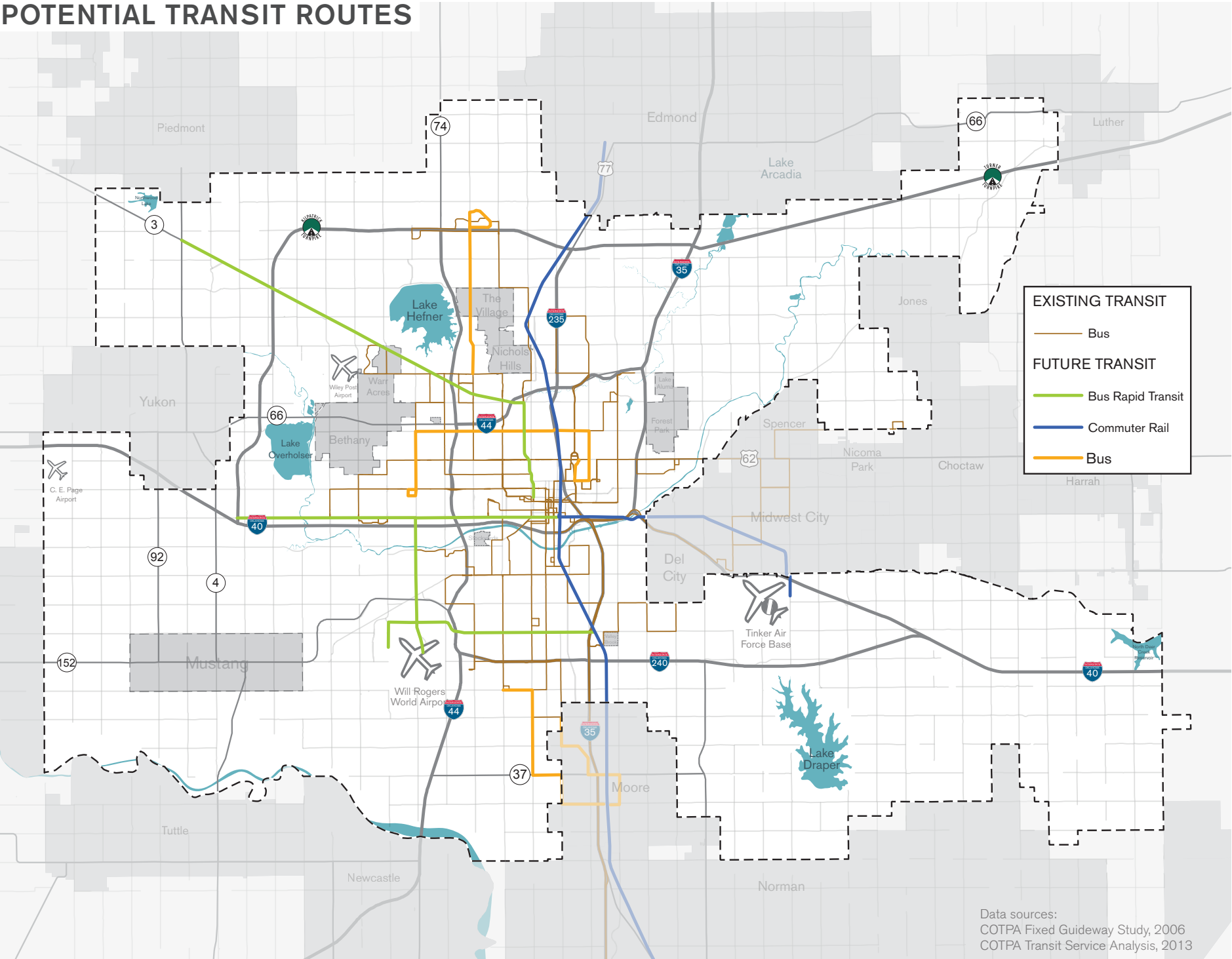
DESIGN FOR TRANSIT ACCESS

We will incorporate transit access into street design standards and projects on appropriate corridors.

As streets that carry transit routes are improved or modified, their design should include features that specifically encourage amenities, pedestrian access, and smoother operations. These features may include enhanced pedestrian access and street crossings at transit stops; signal cycles that give pedestrians time to cross streets; space for shelters; signal controls; and reserved lanes or "JUMP" lanes for bus rapid transit. In addition, street typology standards that include transit-friendly features should be implemented.

We will implement standards that provide good transit access and user connections to major projects on transit routes. The length and nature of the path between a transit stop and the entrance to a major destination determines whether a project really has adequate transit service. For example, a stop should not require people to find their way across a large parking lot to enter the development. New design

POTENTIAL TRANSIT ROUTES



standards for large projects with transit potential should provide safe and comfortable links from the transit stop, or provide routes into the project for transit use.

Policies C-33, C-34, and L-15 implement this initiative.

INITIATIVE 10

PROVIDE TRANSIT TO THE AIRPORT

We will implement appropriate transit service to Will Rogers World Airport. Airport transit services address two markets: airport employees and airline passengers. Many cities, including Oklahoma City, attempt to serve their airports by extending a local line, a technique which serves neither market effectively. The Transit Service Analysis recommends a direct bus service to the airport in its long-term, unconstrained resources scenario. The proposed route would serve the transit hub, Convention Center, and hotels, with typical weekday headways of 30 minutes.

Policy C-38 implements this initiative.

Bicycle transportation has considerable potential in Oklahoma City because of its relatively comfortable topography. Also, despite the city's vast area, many pairs of origins and destinations are actually relatively close to each other. Surveys and experience around the country have shown that many people are interested in bicycling for specific purposes, but are discouraged by safety worries. Infrastructure that provides a safe separation from motor vehicles directly leads to more people using this healthy, enjoyable, and minimum impact method of travel around the city.

INITIATIVE 11

CREATE A DESTINATION-BASED PRIORITY BICYCLE NETWORK

We will design and implement a bicycle route system based on getting people to priority destinations. The current Bicycle Transportation Plan provides a two-phased network of potential bike routes. This network is based on evaluating various streets for bicycle suitability, and provides a solid foundation for implementation. The system should now be refined by considering destinations and designing routes that assemble on-street segments and trails into an entire network that serves multiple destinations.

We will incorporate appropriate support features such as bike parking and wayfinding signage into the system. On and off-street facilities function best with relatively inexpensive support facilities like parking and information graphics. Zoning ordinances and cost-sharing programs can both require, and encourage through incentives, bike parking for appropriate land uses, like major commercial, multi-family, and mixed use development. Desirable city actions include installing bike parking in public parking structures and business districts and encouraging bike "corrals" in which one parking space is dedicated to bike parking in neighborhood business districts.

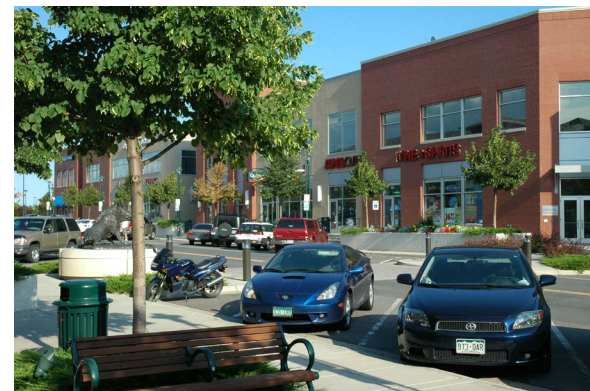
Policies C-20, C-24, and C-25 implement this initiative.

INITIATIVE 12

MEET ANNUAL NEW BICYCLE FACILITY GOALS.

We will establish and execute annual goals for completion of new bicycle infrastructure. Annual installation commitments ensure that new facilities are installed in a systematic way. These goals may be established for specific destination-based routes or for miles of such new facilities as shared use lanes or bike lanes. The annual performance goals also include incorporating bicycle facilities into resurfacing or construction projects of streets on the bicycle network.

Policies C-6 and C-23 implement this initiative.



TRANSIT ORIENTED DEVELOPMENT: ENGLEWOOD (CO) TOWN CENTER

Transit-oriented development supporting Denver RTD's light rail line along I-25.



BRIDGING BARRIERS

Woodson Park trail connection over I-44 (left) and the SkyDance Bridge over I-40 (Photo by Nate Billings, *The Oklahoman*, Copyright 2013)

INITIATIVE 13

REMOVE BARRIERS TO CONTINUITY

We will identify major obstacles to completion of important system connections and implement projects that bridge these barriers. Most interstate crossings are arterial streets, often with interchanges, creating conditions that many cyclists find hazardous. The city has previously developed projects to address these barriers such as the SkyDance Bridge over I-40 and the Woodson Park Bridge over I-44. Other barriers persist, such as the lack of safe crossings over I-44 between May Avenue and I-235, a high intensity area with many important destinations. Options for these projects include dedicated pathway bridges or retrofit of existing interchanges and arterial crossings for better pedestrian and bicycle accommodation.

Policy C-16 implements this initiative.

INITIATIVE 14

PROMOTE A BICYCLE-FRIENDLY CULTURE

We will work as a community to create a supportive environment based on the principles of engineering, education, enforcement,

encouragement, and evaluation. The "5 E's" which the League of American Bicyclists views as the measures of a bicycle friendly community recognize that engineering (bicycle infrastructure) alone does not create a successful bicycle culture. The other components include:

- Education, making cyclists and motorists aware of the rules and practices of safety and etiquette and their mutual rights and responsibilities as road users.
- Enforcement, helping to ensure safety by enforcing rules that pertain to all users.
- Encouragement, executing events and programs that promote bicycling and its many benefits.
- Evaluation, establishing benchmarks and measurements to gauge the effectiveness of bicycling initiatives.

Policies C-24 and L-42 implement this initiative.

Multi-use trails are among Oklahoma City's most popular recreational resources and have enormous potential as part the active transportation system. MAPS 3 will close many of the gaps in the existing system, most notably the connections between Lake Overholser and the west end of the Riverfront Trail; and a trail around Lake Stanley Draper.

INITIATIVE 15

UPDATE AND CONTINUE TO IMPLEMENT THE TRAILS MASTER PLAN

We will update the Trails Master Plan to be consistent with planokc policies, funding availability, and progress made since 1997. This visionary master plan, completed in 1997, called for completion of 208 miles of trails by 2020. We have made significant progress since then, and MAPS 3 will complete major parts of the proposed system by that date. We now should update this document in view of these accomplishments, new thinking about coordinating off- and on-street systems, increased community support for trails and active transportation, and resource availability.

The updated plan should include:

- Design of a new trail network coordinated with multi-modal streets, on-street bicycle/pedestrian routes, and potential greenbelts and green infrastructure.
- Updated trail design standards, using new documents such as the 2012 edition of the AASHTO Guide to the Design of Bicycle Facilities and other contemporary standards.
- Consistent identification and wayfinding graphics, unifying the trail system while allowing identification of individual trails.
- Public safety standards and measures, including design, view corridors, lighting, and communications.

Policies C-17, C-18, C-19, C-20, C-21, P-16, and P-17 implement this initiative.

INITIATIVE 16

PROVIDE FUNDING FOR TRAILS

We will develop a reliable and innovative funding program for the development and maintenance of trails. MAPS 3 will invest almost \$40 million into trail construction between 2014 and 2020, completing three very difficult but critical trail links. This critical



funding will create three excellent facilities and vastly increase the utility of existing trails. A more regular funding source needs to be established for building neighborhood connections, additional linkages between existing trails, greenways, and extensions of the core trail system. The traditional method of trail funding, the federal Transportation Alternatives program, faces challenges with every reauthorization of transportation bills and must compete for declining funds with a wider variety of projects. In addition, good trail maintenance is important, and total costs will increase as the system expands. Because trails are both transportation and recreation facilities (and sometime transportation *to* recreation), funding from the capital and operating budgets of both the Parks and Public Works Departments is both necessary and appropriate. But these funds are stretched thinly, and other sources should be explored. Private developments should build trails within their boundaries identified by the Trails Master Plan and connecting paths to nearby regional trails. Costs may be shared based on the level of local versus general benefit. We must explore these and other techniques to ensure that our trail system continues to both grow and be properly maintained.

Policies C-15 and C-17 implement this initiative.

INITIATIVE 17

IMPROVE TRAIL CONNECTIONS TO STREETS AND DESTINATIONS

We will design or retrofit trails to provide convenient and barrier-free access to adjacent streets and major destinations. A trail that provides miles but does not connect to its surroundings may provide benefits to people seeking workouts, but it fails in its transportation mission to move people to places. In addition, poor access or visibility to and from surroundings can create public safety problems as well. We must design new trails and retrofit existing trails to provide frequent and comfortable access to wayside destinations and streets, with clear signage that helps orient users to their location.

Policies C-18, P-16, P-17, and P-18 implement this initiative.

Our sidewalk system is the most important public asset serving the needs of pedestrians. This system is at best intermittent and in poor repair where needed most, in older parts of the city. MAPS 3 will invest \$9 million in critical sidewalks, many of which are along arterial streets. This will complement other sidewalk

The City . . . is connected not only by roads but by trails – it is a community of the new millennium. The City is not only bicycle-pedestrian friendly, its people are very friendly as well. . . a destination for people from all over the World, for students and children, for seniors and for those just passing through.

-The Vision of the Oklahoma City Trails Master Plan (1997)

construction funded by a 2007 bond issue. Together, these efforts recognize the importance of a sidewalk network to the entire community and its safety and quality.

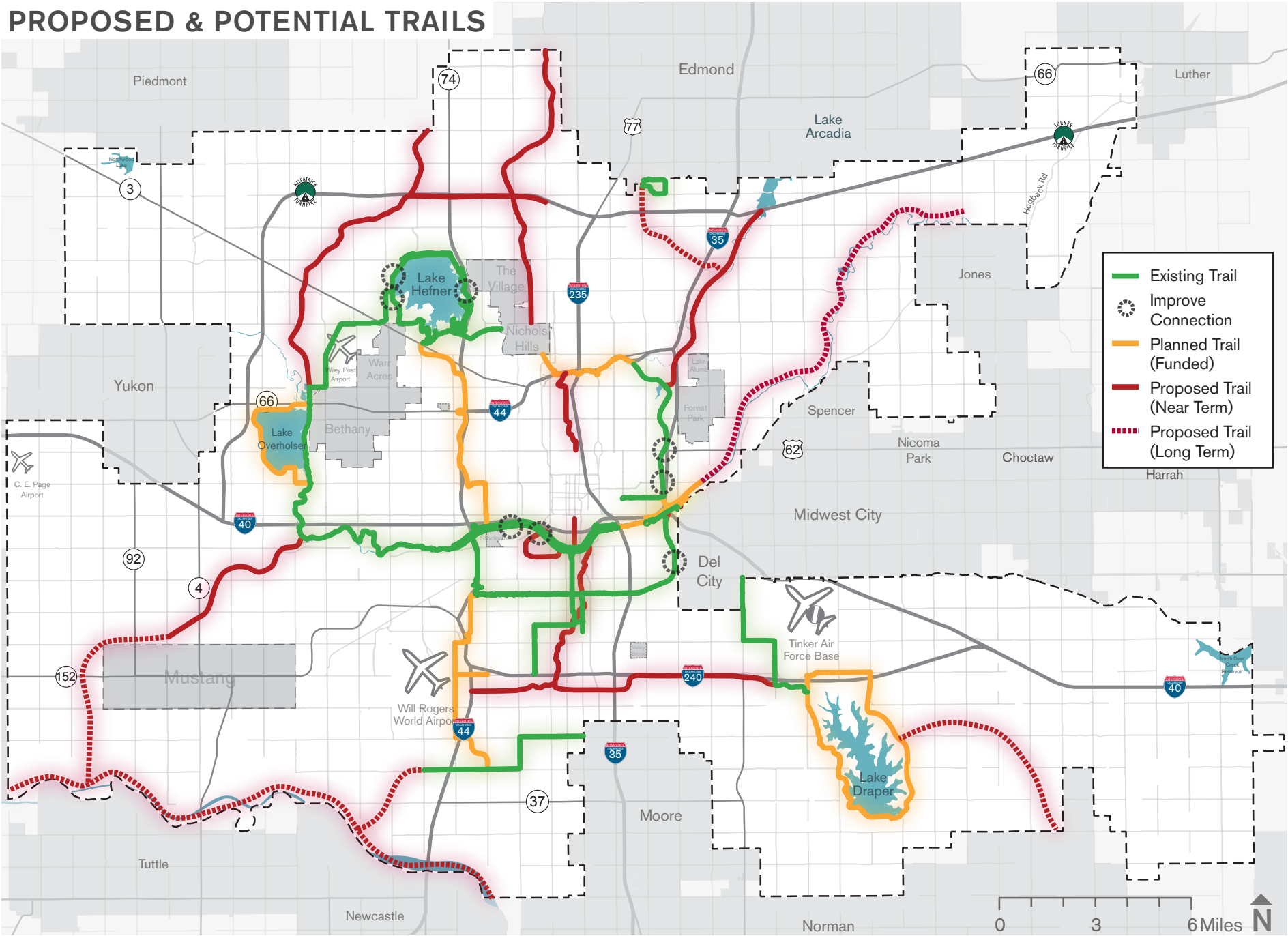
INITIATIVE 18

DEVELOP A MAJOR PEDESTRIAN SYSTEM PLAN

We will develop and implement a strategic plan for the city's pedestrian network, building on the foundation of the 2013 Sidewalk Master Plan for MAPS 3. The 2013 Sidewalk Master Plan was a significant step forward, including an analysis of pedestrian demand in different parts of the city. However, its primary purpose was to identify priority projects for a specific sidewalk construction category of MAPS 3. Many of these projects supply new sidewalks along major corridors with high demand, based on a systematic rating system. These are extremely important, but many other problems remain, including:

- Neighborhood sidewalks on local streets that provide access to destinations such as schools and transit stops.
- Barriers to pedestrian travel such as major intersections, long arterial street crossings, and signal timing.
- Relationship of sidewalks to other parts of the active transportation network, including multi-modal streets, bicycle facilities, transit, connections to adjacent development, and trail access.

PROPOSED & POTENTIAL TRAILS



These issues require an expanded pedestrian system plan that:

- Identifies a Complete Streets Network prioritizing pedestrian corridors that should be developed and funded as part of the city's transportation program. The MAPS 3 and previous bond issue study provide a starting point for this network.
- Establishes standards for local sidewalk coverage and a process to evaluate pedestrian service on a neighborhood by neighborhood basis. An example of such a standard would be provision of a complete and well-maintained web of sidewalks within a 1/2 mile walking radius of elementary and middle schools.
- Identifies key pedestrian barriers that obstruct access for important user groups, including children and older adults. This effort should include standards and techniques to minimize these barriers.
- Relates other active modes or facilities to the sidewalk network.
- Provides a phased implementation program that may include individual categories of funding, such as neighborhood target areas and major network investments.

Policies C-26 and C-27 implement this initiative.



PATH FOUNDATION IN ATLANTA

Atlanta's PATH Foundation is a private nonprofit that has completed and maintains 180 miles of metropolitan trails to date.

INITIATIVE 19

IMPLEMENT STREET AND LAND USE TYPOLOGIES FOR SIDEWALK DEVELOPMENT

We will implement sidewalk requirements for both land use typology areas (LUTAs) and street typology standards in city development ordinances and standard practice. Different LUTAs will have different levels of pedestrian activity. Thus, different solutions may be applied to achieve the overall goal of providing appropriate pedestrian service. For example, a loop of local streets in an Urban-Low Intensity LUTA and a street grid in an Urban High-Intensity area will require different approaches to achieve areawide service. Different types of streets also have different sidewalk requirements based on their function and context. City design standards and implementing ordinances should reflect these differences in width, setback, connection, density, and presence of alternatives like trails or other off-street paths.

Policies C-14 and ST-29 implement this initiative.



MIDTOWN GREENWAY IN MINNEAPOLIS

Trail access ramps to surrounding streets and development along the grade-separated Midtown Greenway in Minneapolis.

INITIATIVE 20

ESTABLISH CLEAR FUNDING AND RESPONSIBILITIES FOR SIDEWALKS

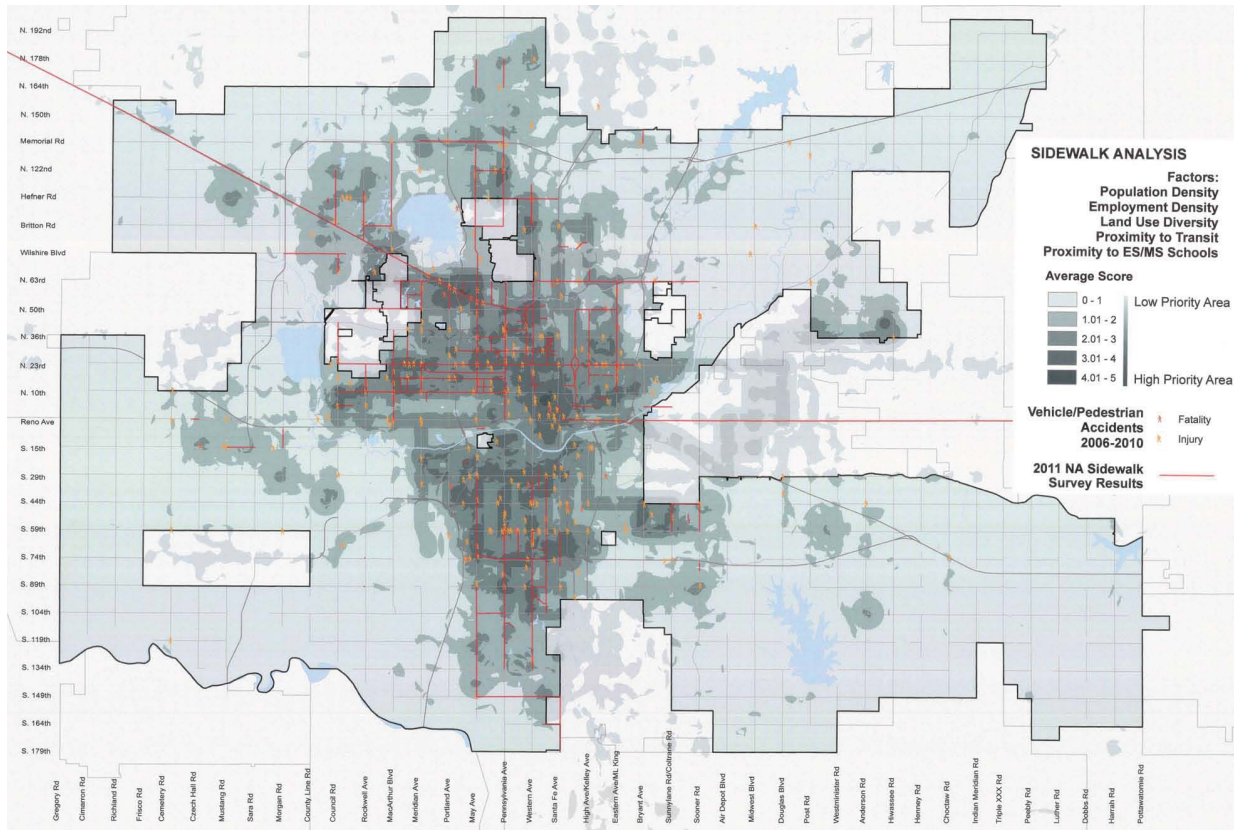
We will establish clear private and public funding mechanisms for sidewalk construction and repair, and define and enforce maintenance responsibilities for property owners. Several issues complicate funding and maintenance requirements. First, sidewalks are a community responsibility at both citywide and local levels – failure to comply with requirements by one or two property owners can deprive many people of access. Second, in many cases, people with the least ability to build, repair, or maintain sidewalks have the greatest need for them. Third, funding for sidewalks has often been collected through special assessments, often leading to opposition from adjacent property owners. We must develop alternatives that encourage sidewalk connectivity and maintenance. Neighborhoods may be more engaged in sidewalk development or maintenance when owners are unable to meet these responsibilities, and sidewalk networks in local areas may require some level of public funding to be developed fully.

Policy C-26 implements this initiative.

INITIATIVE 21

PLAN FOR INCREASED NORTH-SOUTH RAIL CAPACITY AND NEW FREIGHT INFRASTRUCTURE

We will begin a cooperative study with the Burlington Northern & Santa Fe (BNSF) Railway and other involved railroads to expand freight and passenger capacity in the north-south corridor. In view of increased freight traffic projections on the BNSF, it will be important to develop a plan to increase capacity in this service corridor. The public has a significant stake in addition to increasing Oklahoma City's ability to position itself as a freight transportation hub. Increased length and frequency of trains can degrade traffic flow at this line's relatively frequent grade crossings. Also, from a regional transportation perspective, increased freight traffic on this single line



PEDESTRIAN DEMAND

Pedestrian demand analysis from the Sidewalk Master Plan, used to identify priority MAPS 3-funded sidewalk projects.

may make commuter rail or additional Amtrak service impossible. A study will examine alternatives that could include an additional track, improved technology, or a freight bypass.

We will work to establish Oklahoma City as a principal intermodal center, beginning with a study to consider the demand, feasibility, and measures necessary to develop such a facility. Oklahoma City, at the intersection of major road, railroad, and air facilities, appears well-positioned to expand its role as a major focus for intermodal freight and distribution. The impact of such a center can be very beneficial in terms of new jobs, investment, and even redevelopment

of brownfields industrial sites. One of the newest intermodal facilities, the BNSF's Kansas City Intermodal Facility and the associated Logistics Park, is opening with about one million square feet of warehousing space and is projected to attract up to 15 million square feet of warehousing, distribution, and associated industry, with employment in excess of 2,000 people. The private and public sectors of our community should examine the feasibility of such a facility, potential sites, potential developers, and steps necessary to execute the concept.

Policies C-40, C-41, and L-40 implement this initiative.



PEDESTRIAN TECHNIQUES

From top, HAWK (High-intensity activated crosswalk) signal and crossing median (Buford Road in Chamblee, GA) Use of an off-road path to provide pedestrian access in lieu of sidewalks (Leawood, KS); Intermediate median to set off left-turn lanes with colored crosswalk (Green Bay, WI)