Central Omaha TRANSIT ALTERNATIVES ANALYSIS

Final Draft

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metro

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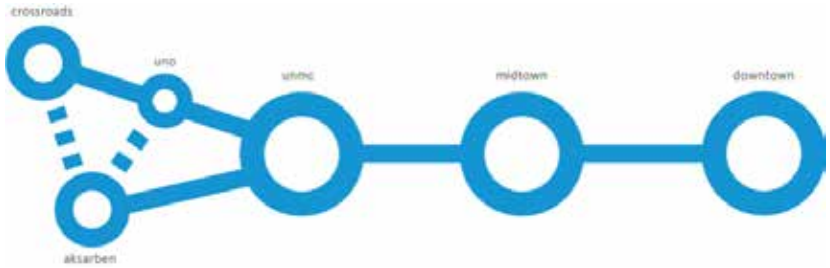
EXECUTIVE SUMMARY

This document describes the process by which a Locally Preferred Alternative (LPA) was selected for the Central Omaha Transit Alternative Analysis (AA) Study.

The study is led by Metro in partnership with the City of Omaha and the Metropolitan Area Planning Agency (MAPA). The study considers urban circulator transit alternatives to connect activity centers and neighborhoods in Central Omaha while tying together the regional transit network to improve mobility and aid employment growth and economic development.

The study strives to address the challenges of navigating an under-connected corridor by providing a transportation connection between the following districts: Downtown, Midtown, University of Nebraska Medical Center (UNMC), University of Nebraska at Omaha (UNO), and the Crossroads and Aksarben Village areas.



Locally Preferred Alternative

The LPA includes a 7.98-mile Bus Rapid Transit (BRT) line between Downtown, Midtown, UNMC, UNO, Crossroads, and Westroads, as well as a 3.22-mile Modern Streetcar line between North Downtown, Downtown, Midtown, and UNMC.

The LPA recommendation follows a two-year study to develop and evaluate transit alternatives in Central Omaha. The project included extensive public engagement, stakeholder involvement, and one-on-one meetings.

Table ES-1 Locally Preferred Alternative (Combined Alternative)

Feature	Locally Preferred Alternative	
	Bus Rapid Transit	Modern Streetcar
East terminus	Downtown (10th St/Farnam/ Harney)	North Downtown (12th St/ Fahey)
West terminus	Westroads Transit Center	UNMC (42nd St/Farnam)
Alignment between 31st and 10th St	Farnam/Harney Couplet or Farnam Contraflow	Farnam/Harney Couplet or Farnam Contraflow
Frequency (peak/off-peak/evening)	10/15/20 minutes	10/15/20 minutes
Daily operating hours (M-F/Sat/Sun)	19/18/12 hours	19/18/12 hours
Distance	7.98 miles	3.22 miles
Vehicle travel time	26:59	15:24
Vehicle requirement (peak/total)	6/8 buses	4/5 streetcars
Capital cost ($2013) couplet / contraflow	$34,466,000 / $39,185,000	$134,457,000 / $133,844,000
Capital cost per mile ($2013) couplet / contraflow	$4,319,000 / $5,011,000	$41,757,000 / $43,740,000
Annual O&M cost ($2013)	$3,008,844	$6,347,246

Purpose and Need

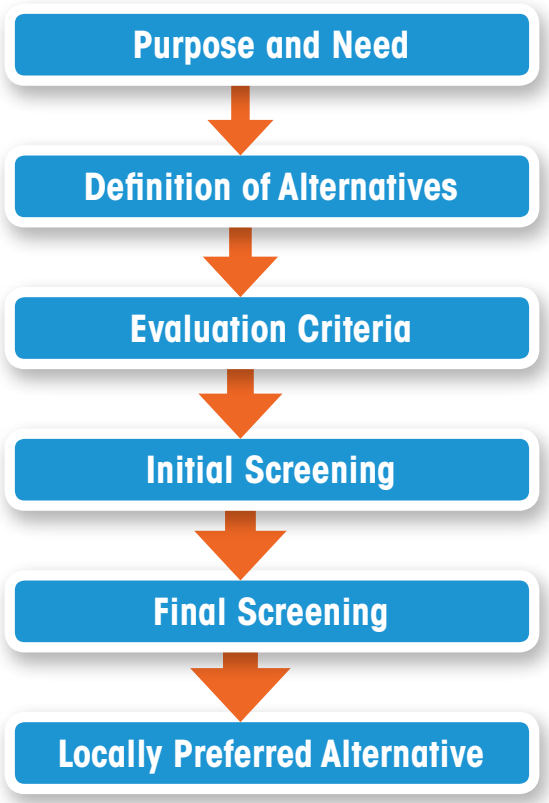
What is the problem?

- *Spatially disconnected activity centers*
- *Lack of transit priority corridor*
- *Increased transit demand from population and employment growth*
- *Imbalanced parking availability and capacity*
- *Poor trip circulation for special events*
- *Lack of transit access to jobs*
- *Lack of adequate stop and service amenities*
- *Sustainability goals/measures in adopted plans*

What is the purpose of the transit solution?

- *Connect major districts, destinations, and activity centers*
- *Provide simple, localized, high-frequency transit service*
- *Support population and employment growth, and revitalization*
- *Balance parking availability and capacity*
- *Improve transit circulation for special events*
- *Maximize transit access to highest employment corridor*
- *Provide adequate stop and service amenities*
- *Contribute to meeting sustainability goals/measures in adopted plans*

Study Process



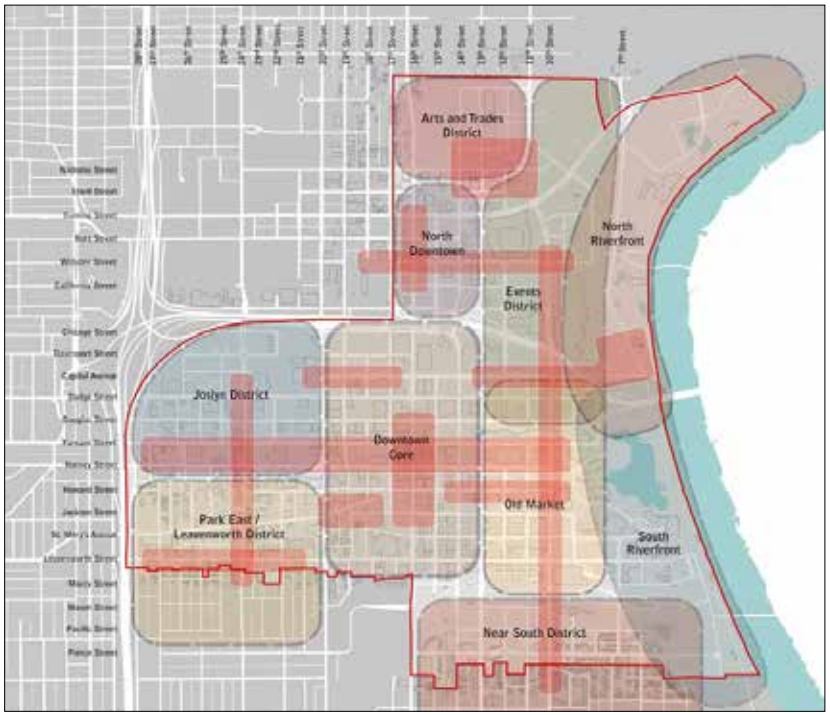
Project Justification

- The project is built around the *Downtown Master Plan's* Guiding Principles, and the goals from the *Omaha Master Plan* Environment and Transportation Elements.
- It looked at public transit as a part of the overall development and redevelopment strategies of the City.
- It focused on the Downtown to Crossroads corridor but with links to the overall Metro bus system.

How is this project different from previous studies?

As a result of the *Downtown Master Plan*, the BRT and Modern Streetcar systems are completely different concepts from the "tourist trolley" and other circulators considered in the past.

- They are now part of a citywide transit strategy that will reduce transportation costs, improve Omaha's economic competitiveness, and enhance the overall quality of life for the City's residents.
- They are the same as any other suburban or redevelopment City investment.
- Together with improvements to Metro's citywide bus service, the proposed BRT and Modern Streetcar systems will complement each other, and improve connections into and circulation around Downtown.
- The BRT will enhance regional transit service between Westroads and Downtown while the Modern Streetcar will serve as a "Downtown Connector" that connects people and places between UNMC and North Downtown.



Downtown Omaha Master Plan Districts and Corridors

How does the Downtown Connector work? And how does it complement the BRT?

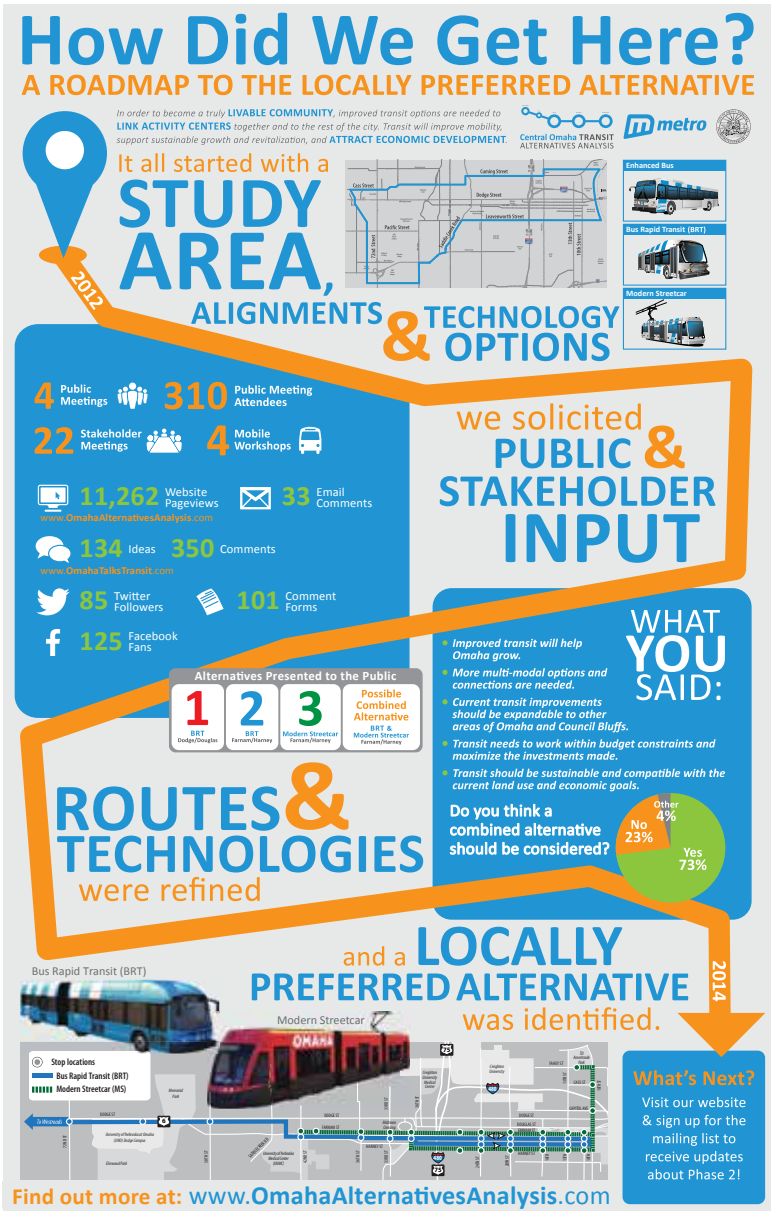
- The Downtown Connector (Modern Streetcar between UNMC and North Downtown) will allow Downtown residents to move easily between their home and work, campus or entertainment venues.
- The Downtown Connector will reduce parking expenses for commuters, residents, businesses, campuses, and visitors and reduce the hassle and expense of driving and parking every time you move from one part of Downtown to another.
- The Downtown Connector will allow for the more efficient use of existing parking facilities and reduce the amount of parking needed for future development thus opening more land for development and reducing development costs.

- The BRT and Downtown Connector will act as a catalyst for new development and increased property values in Downtown.
  - Over a 15-year period, the BRT could attract up to:
    - 1,200 additional jobs
    - 1,350 additional residents
    - $262 million in additional new construction
- Over the same 15-year period, the Downtown Connector could attract up to:
    - 8,500 additional jobs
    - 3,150 additional residents
    - $1 billion in additional new construction
- The combination of the BRT and Downtown Connector will allow the City to achieve the vision outlined in the *Downtown Master Plan*.
- Without the BRT and Downtown Connector systems, the additional jobs, residents, construction, and valuation increases will not be possible because of the amount of land that will need to be devoted to parking to accommodate the lesser development that is expected to occur in the corridor.

Development potential in Downtown Omaha
Source: *Downtown Omaha Master Plan*

What is the next step?

Following adoption of the LPA, the project will begin Environmental Documentation, Advanced Conceptual Engineering, and Finance Plans for both projects. This is the next step in a two-step planning process.

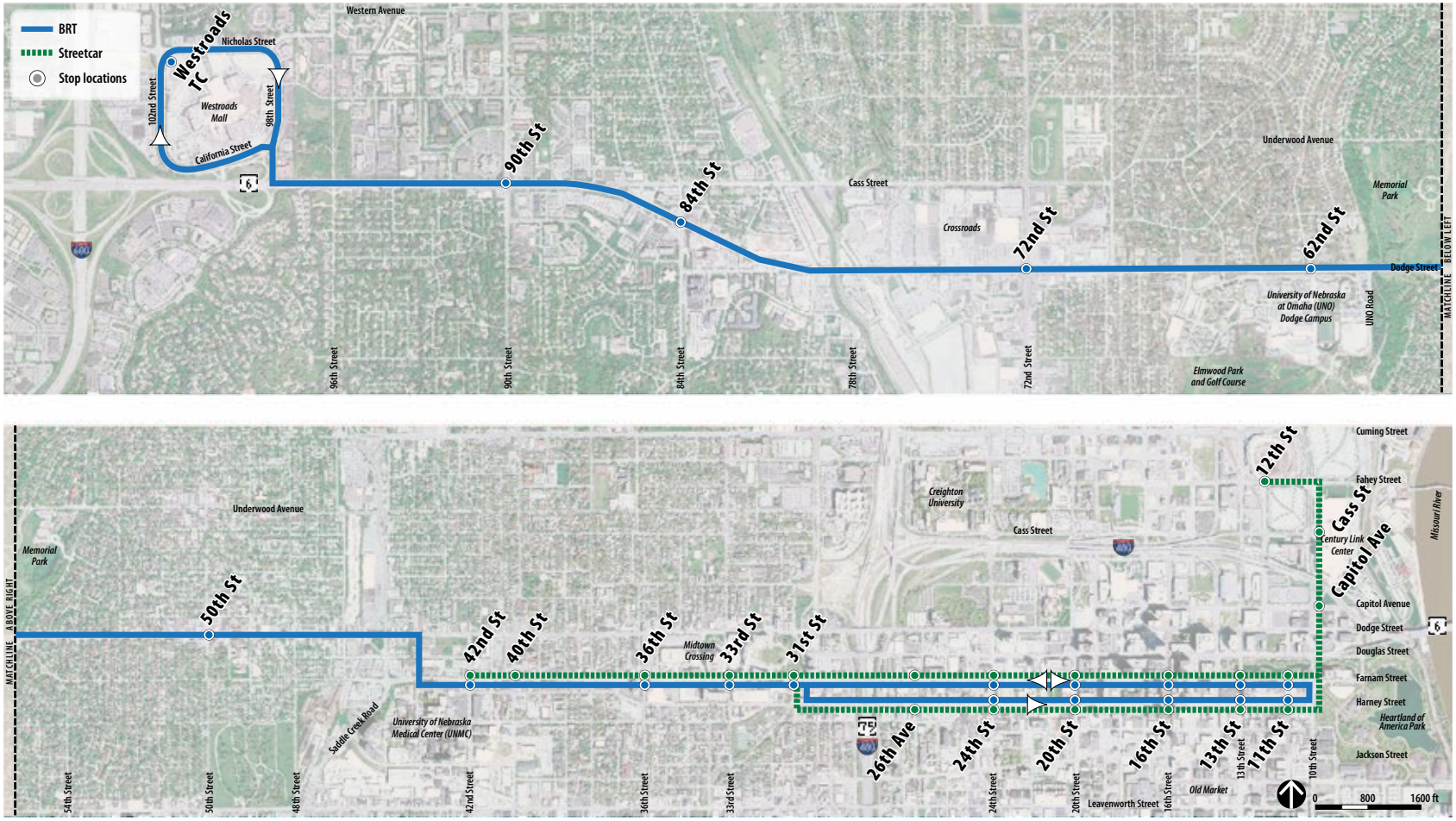


Handout summarizing public participation for the Central Omaha Transit Alternatives Analysis

Conceptual rendering of Farnam couplet design option

Conceptual rendering of Farnam contraflow design option

Figure ES-1 Locally Preferred Alternative (Combined Alternative)



1 PURPOSE AND NEED

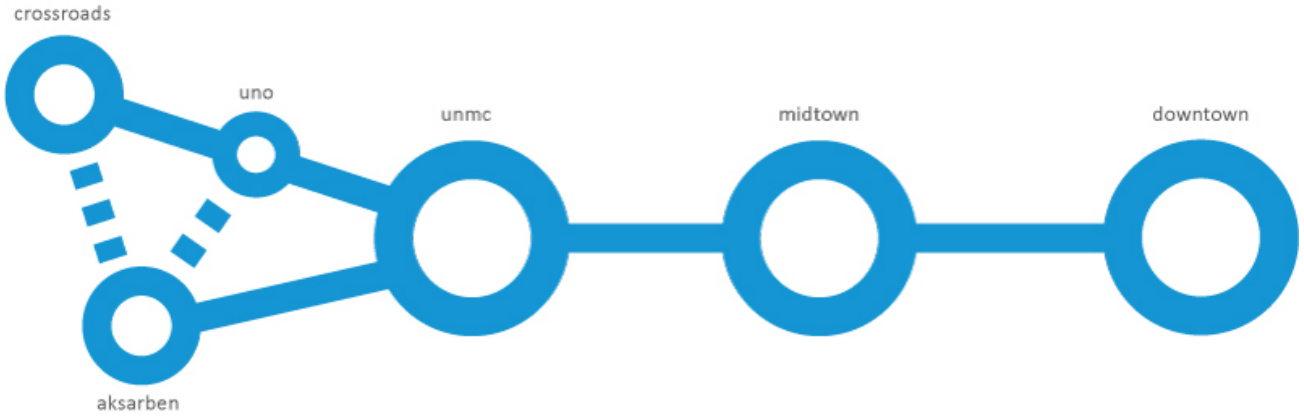
1.1 Introduction

This section describes the Purpose and Need for the Central Omaha Transit Alternatives Analysis (AA) Study. The study is being led by Metro in partnership with the City of Omaha and the Metropolitan Area Planning Agency (MAPA). The study considers urban circulator transit alternatives to connect activity centers and neighborhoods in Central Omaha while tying together the regional transit network to improve mobility and aid employment growth and economic development.

The study strives to address the challenges of navigating an under-connected corridor by providing a transportation connection between the following districts: Downtown, Midtown, University of Nebraska Medical Center (UNMC), University of Nebraska at Omaha (UNO), and the Crossroads and Aksarben Village areas.

By connecting employment and educational hubs, residential, shopping areas, civic resources, historic districts, cultural landmarks and entertainment venues in Central Omaha, the proposed transit alternatives will increase mobility and accessibility for the people who live, work, and visit the corridor. They will provide better linkages to the regional transit network and connect with key Metro bus routes. They will also promote transit use, biking, and walking within the corridor while reducing the need to travel by automobile and decreasing greenhouse gas emissions. They will provide improved transit service to low to moderate income populations in Downtown and throughout the study area.

In concert with local efforts, the proposed transit alternatives will play a pivotal role in improving pedestrian connections to the Missouri riverfront. Local plans such as the *Destination Midtown Plan* and *North Downtown Plan* identify needs to improve transit connections to areas immediately adjacent to the Downtown core. The *Downtown Omaha Master Plan* envisioned a need to create a transit loop to provide more effective service throughout Downtown and connect to a future Downtown transit center, and extend to the new Midtown Crossing development and UNMC. In addition, recent development at Crossroads, the UNO Dodge, Pacific, and Center campuses, and Aksarben Village have created demand for new connections between these points and a desire for a revitalized transit system throughout the study area.




crossroads redevelopment
crossroads
destination midtown redevelopment plan
north downtown master plan
uno
aksarben
unmc
midtown
downtown
aksarben village master plan
destination midtown redevelopment plan
downtown master plan

1.1.1 Previous and Ongoing Studies

In an effort to enhance, connect and activate the downtown core, the Omaha community realized the need for better transit service and in 1995 undertook the first of several feasibility studies to determine the possibility of implementing a streetcar in the downtown area, in response to the public's desire for a streetcar. Early results of these studies were positive, but focused on connecting tourist related facilities and proved to require more research. Development of additional studies, such as the *Destination Midtown Master Plan*, *North Downtown Plan*, and the *Downtown Omaha Master Plan* identified the need to improve transit connections to areas immediately adjacent to the downtown core.

Special attention was paid to the recently adopted Environmental Element of the *Omaha Master Plan* (2010). Specific goals, strategies, and measurements have been adopted therein, by which identification and implementation of a transit alternative in this corridor can greatly contribute. Subsequent studies have built on the previous efforts to identify a transit connection extending to Midtown and UNMC, as well as additional connections to the UNO campus and Aksarben Village and Crossroads areas, traffic studies, and other non-build environmental considerations.

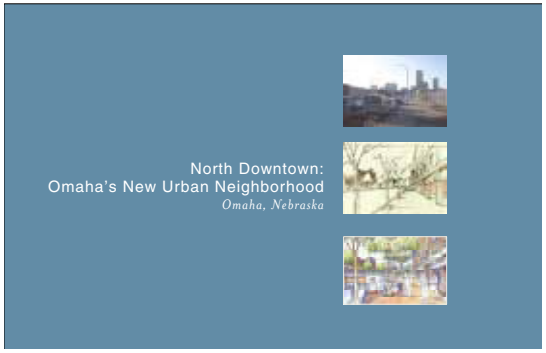
Destination Midtown Plan (2005)

The vision for Destination Midtown represents a unique partnership of public and private interests working together to make Midtown a destination of choice in Omaha. Using the vision as a guide throughout the planning process, recommendations incorporate a comprehensive framework for the resurgence of Midtown. The *Destination Midtown Plan* was funded by the Greater Omaha Chamber and approved by the Omaha City Council. This plan was managed by a board formed to provide oversight of the plan. A position was later created through the Greater Omaha Chamber to manage the area and program implementation, and prioritizes the following neighborhood development, economic development, transportation/corridor development, and vision realization.

Midtown Crossing

Most recently, consideration has been given to update the plan and analyze the program implementation goals and objectives. While no formal decisions have been made to update the plan, the position created through the Greater Omaha Chamber to manage the Midtown area is currently active. Quality of life and environmental goals associated to neighborhood development, walkability for nearby residences, and community activities have been achieved. In addition, the *Dodge Street S-Curve Study* (described below) evolved from the *Destination Midtown Plan*, with concept refinement underway, and subsequent phases to follow.

North Downtown: Omaha's New Urban Neighborhood (2005)

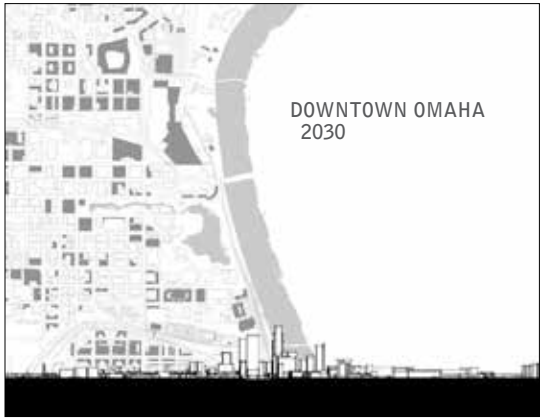


The *North Downtown Conceptual Redevelopment Study*, as it was originally called, was undertaken in order to establish a redevelopment plan for Omaha's "front door" as the gateway to the Downtown area from I-480 and Omaha Eppley Airfield airport. The 80 block study area examined a variety of potential build-out scenarios for the area and ultimately created an implementation strategy to move the plan from vision to reality. The planning process established a comprehensive implementation strategy that examined both public sector and private sector initiatives and actions necessary to initiate and propel the desired level of redevelopment activity. The study was managed by the City of Omaha and approved by the Omaha City Council and focused on strategic policies, procedural requirements, regulatory initiatives,

TD Ameritrade Park in North Downtown hosts the NCAA Men's College World Series

and infrastructure investments. In 2009, many of the goals and objectives established during this plan were incorporated as part of the *Downtown Omaha Master Plan*.

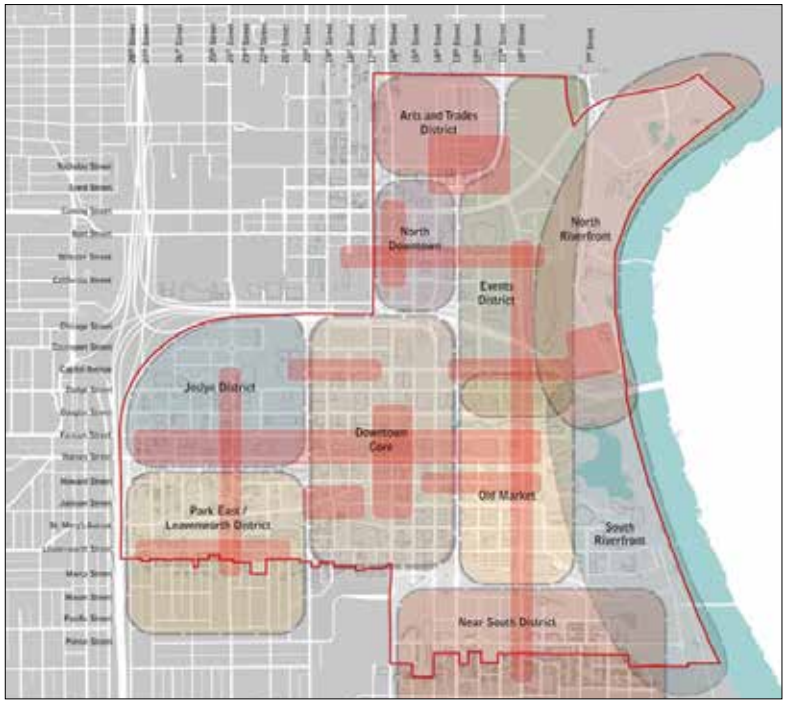
Downtown Omaha Master Plan (2009)



1. Be the dominant economic engine for the region
2. Be a great place to live, work, play, visit, and learn
3. Be home to the unique civic and cultural resources of the region
4. Have distinct neighborhoods, districts and corridors
5. Be urban
6. Have a comprehensive system of integrated, diverse open spaces for public use
7. Be a multi-modal environment where one can live everyday life without using a car
8. Comprise a series of integrated "park once" districts
9. Be a model of sustainable urbanism
10. Strive to cultivate a culture of design excellence

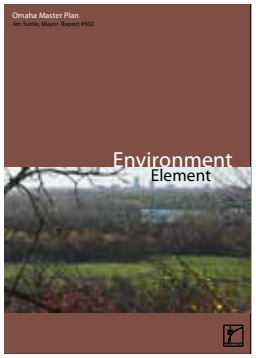
The *Downtown Omaha Master Plan* was developed jointly by the City of Omaha and Heritage Services and lays out an ambitious, but achievable vision through 2030 to make the Downtown area a world class place to live, work, and play and provide a resource for residents and workers, regional visitors, and tourists. The study area is 2.2 square miles in size and incorporates specifics related to the need for development of a modern, multi-modal, Downtown transit center.

Ten principles were developed collaboratively during the planning process and summarize the community's goals. These principles were approved by the Omaha City Council and say that Downtown should:



Downtown Omaha Master Plan Districts and Corridors

Omaha Master Plan Environment Element (2010)



The Environment Element of the *Omaha Master Plan* is a guide for City actions and policies and a vision for the long-term environmental health and sustainability. Development of the Environment Element more comprehensively incorporates the issues to serve the purposes called for in the City Charter, which include establishing policies, goals, and standards as a general guide for physical development.

The Urban Form and Transportation category of the Environmental Element provides direction for Omaha to substantially reduce its impact on the environment and the per capita cost of critical infrastructure and municipal services to increase its level of urban quality and community health by supporting an efficient city form with a balanced transportation network that increased the role of low impact and active transportation modes in providing access to all parts of the city

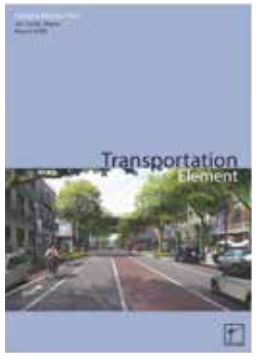
Goals under the Urban Form and Transportation category include:

- **Large-scale City Form:** Develop a city form that both reduces the per capita cost of providing city services and establishes the density necessary to support more energy-efficient forms of transportation.
- **Land Use and Development Policy:** Generate development at higher residential densities and true mixed uses that produce more diverse environments and reduce the number of necessary automobile trips.
- **Land Development:** Create individual developments with components that are connected, walkable, and accessible to all modes of transportation, by providing safe, defined, and pleasant routes from the public realm to destinations.
- **Transportation Network:** Develop a transportation network that moves people and freight within and through the metropolitan area efficiently, maximizing access and minimizing vehicle miles traveled, energy consumed, and pollutants emitted.
- **Transit:** Develop a public transportation system that offers a degree of coverage, convenience, and amenity, that both provides transportation equity for dependent customers and makes transit an attractive option for discretionary passengers.
- **Active Transportation:** Provide a high level of citywide access and continuity to pedestrians and bicyclists, making active transportation a realistic and integral part of the city's transportation network.

The City of Omaha will measure success (as adopted by the Omaha City Council) by achieving the following measurements toward sustainability by 2030:

- ***Omaha's population density will grow to 4,500 people per square mile. The current population density is 3,489 people per square mile. As a point of comparison, the population density was 6,171 people per square mile in 1950.***
- ***Ten percent of all trips in Omaha will be made by active transportation modes (pedestrian, bicycle, and public transportation). Today, about 2 percent of all trips and 4.4 percent of commute trips are made by these modes.***
- ***Fewer than 65 percent of all work commuting trips will be made in single-occupant automobiles by 2030. Currently, about 82 percent of commuting trips are made in single occupancy automobiles.***
- ***Decrease per capita motor vehicle miles traveled by Omaha motorists by 10 percent.***

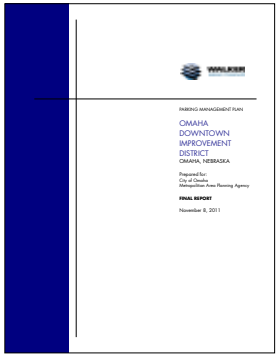
Omaha Transportation Master Plan Update (2012)



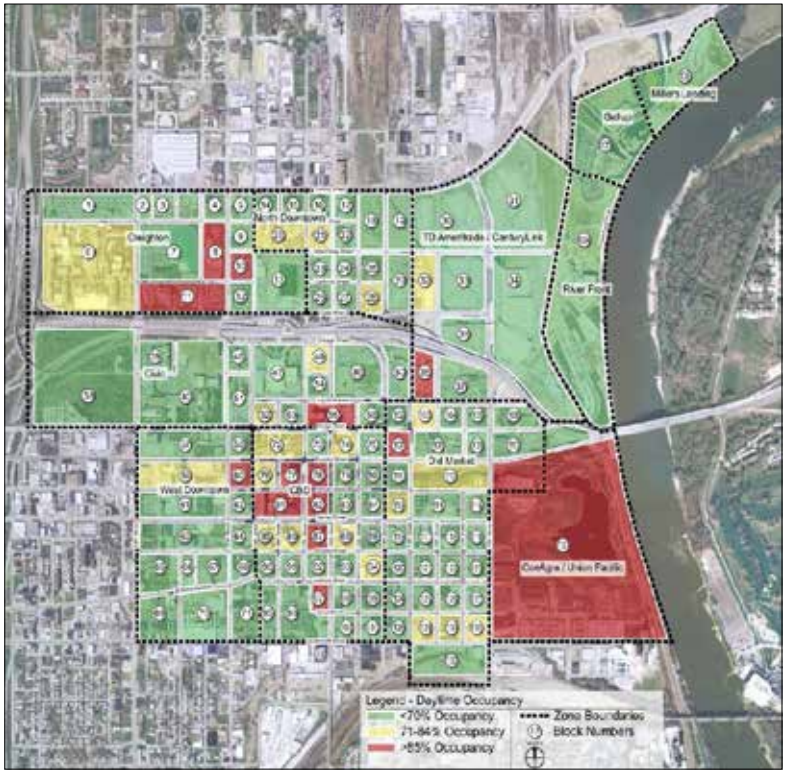
The Transportation Element of the *Omaha Master Plan* provides a blueprint for building a transportation system, including BRT and streetcar, where there are balanced options on how to get around, such as roads, paths, and sidewalks that contribute to safe and healthy environments, infrastructure to improve livability and connectivity in Omaha's neighborhoods, and fiscally sustainable investments with sound economic returns. The Transportation Element is driven by four community goals developed throughout the planning process:

- Provide balanced options for enhanced mobility
- Attain a safe and healthy environment
- Create livable and connected neighborhoods
- Promote economic returns with fiscal sustainability

Omaha Downtown Parking Management Plan (2011)



The *Parking Management Plan* provides decision-making information for the on-street and off-street municipal parking system in Downtown. The report addresses seemingly disparate elements and policies of the parking system that impact each other, the parking system as a whole. The overriding theme within the findings and recommendations in each area is that a comprehensive approach improves the City's ability to manage its parking assets.



Daytime Parking Occupancy in Downtown
Source*: Olsson Associates, Walker Parking Consultants*

S-Curve Area Connectivity Project (Ongoing)

The S-Curve project is developing and evaluating alternatives to reconfigure the Dodge Street "S" curve near Turner Park where two-way Dodge Street transitions to the one-way Dodge/Douglas Street one-way couplet. This concept evolved from the *Destination Midtown Master Plan*. The study will include an Environmental Assessment and Preliminary Design for the Preferred Alternative as required by the Federal government for a project of this size.

S-Curve Area Connectivity Project Study Area

Harney Street Bicycle Study (Ongoing)

As part of the *Omaha Transportation Master Plan*, the Harney Street Bikeway ranked first of 266 possible street, trail, or other transportation projects. The plan calls for converting one eastbound lane of the current four vehicular lanes of traffic to a trail, set off by a landscaped median, that is designated for walking and biking and to connect Downtown, Midtown Crossing, and UNMC.

Harney cycletrack concept
Source: *Omaha Transportation Master Plan*

Example of cycletrack, Seattle, WA

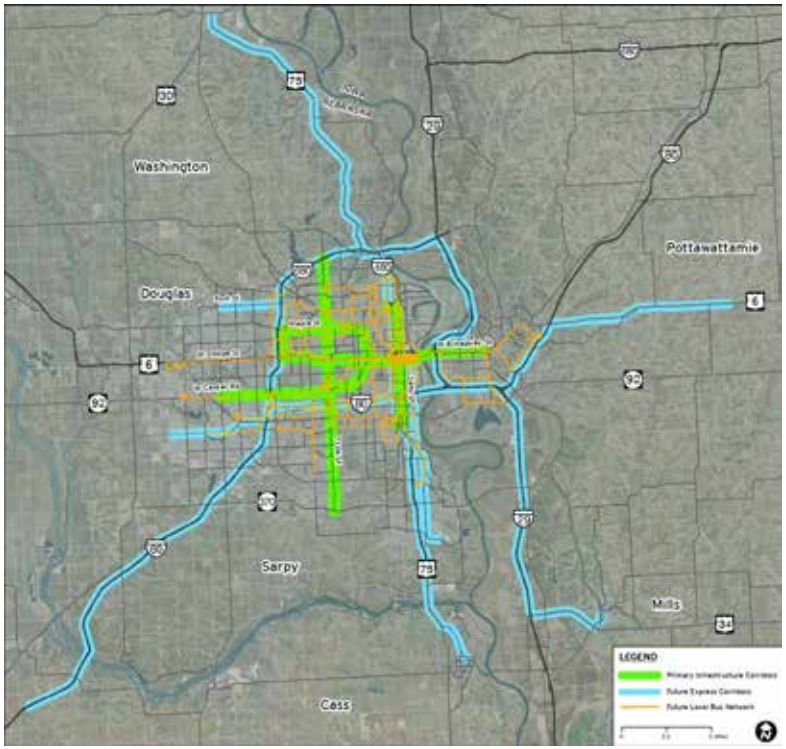
MAPA Heartland 2050 Regional Vision (Ongoing)

MAPA received a Housing and Urban Development Sustainable Communities Grant to conduct a Regional Visioning process entitled "Heartland 2050." This award will be used to develop a long-range vision for the Omaha-Council Bluffs Metropolitan Statistical Area. MAPA is leading a consortium of over 300 partners in the region to develop a regional plan addressing land use, housing, transportation, infrastructure, economic development and public health.

Source: *Heartland 2050*

MAPA/Metro Regional Transit Vision (2014)

The Regional Transit Vision is one component of the MAPA *Heartland 2050*. MAPA collaborated with Metro to assess current and anticipated needs for public transit service in the region, and the steps necessary to realize short- and long-term transit enhancements. This study also evaluated the possibility of creating a regional transit authority and other steps to enhance transit service in the metropolitan area. Four guiding principles for service development were established through the Regional Transit Vision: 1) Right size service to market, 2) Strengthen network structure, 3) Improve the customer experience, and 4) Build financial sustainability. The map below highlights the study's identified and prioritized capital transit projects.



MAPA/Metro Regional Transit Vision map of identified and prioritized capital transit projects

Table 1 Previous and Ongoing Studies

Previous and Ongoing Studies	Description
Destination Midtown Plan (2005)	Discusses enhancing the transit system to include extension of the bus circulator routes into Midtown and/or establishing a streetcar line linking Midtown to adjacent areas.
North Downtown: Omaha's New Urban Neighborhood (2005)	Plans ultimate build-out of North Downtown over next 10-15 years. The strategy allows for a phased approach to be undertaken by both the City of Omaha and the private sector development community.
Downtown Omaha Master Plan (2009)	Identifies future options for Downtown transit service, including a transit corridor using the one-way couplet on Farnam and Harney Streets.
Environmental Element (2010)	Identifies 2030 sustainability measurements: Density of 4,500 people per square mile, 10 percent of trips be made by active transportation modes, fewer than 65 percent of work trips be made by single-occupant vehicles, vehicle miles traveled reduced by 10 percent.
Omaha Transportation Master Plan Update (2012)	Multi-modal transportation plan focused on walkability, biking, and transit which recommends both capital projects and transportation policy changes.
Omaha Downtown Parking Management Plan (2011)	Recommends for on-street/off-street parking, on-street parking enforcement, and planning and zoning provide the framework for a uniform system.
MAPA/Metro Regional Transit Vision (2014)	Analyzed current and anticipated needs for public transit service in the region, and evaluated steps to enhance transit service in the metropolitan area.
S-Curve Area Connectivity Project (Ongoing)	Examines the Destination Midtown study findings and provide recommendations to reconfigure the Dodge Street "S" curve near Turner Park.
Harney Street Bicycle Study (Ongoing)	Proposes converting one eastbound lane of the current four vehicular lanes of traffic to a trail that is set off by a landscaped median designated for walking and biking and to connect Downtown, Midtown Crossing, and UNMC.
MAPA Heartland 2050 Regional Vision (Ongoing)	Analyzing the region's transportation, housing, utilities, and land use patterns to develop principles that guide physical growth and aid in regional decision making.

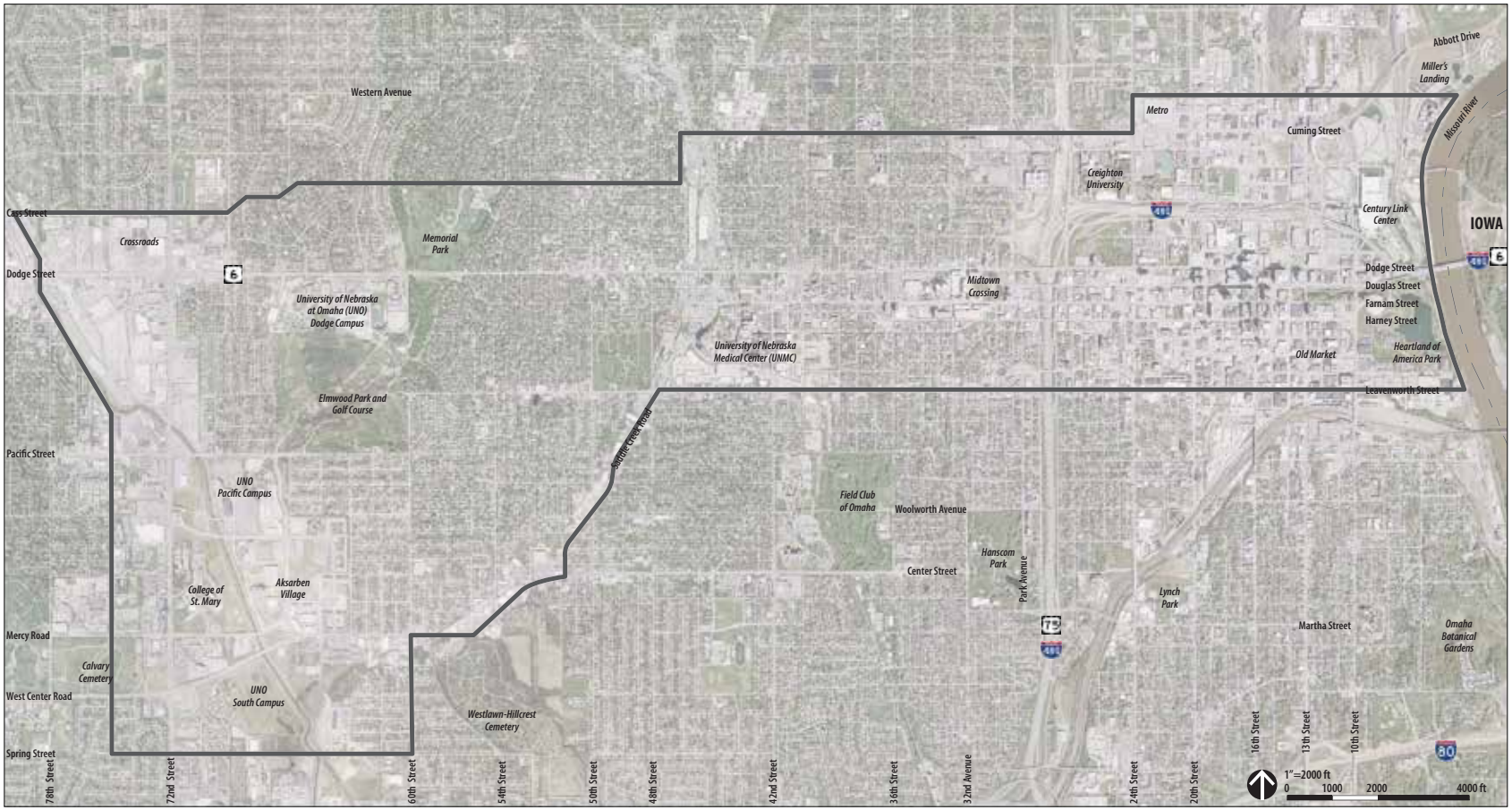
1.2 Study Area Description

1.2.1 Overview

The study area is located within Central Omaha (Figure 1, next page), and is generally bounded by 72nd Street on the west, the Missouri River on the east, Cuming Street on the north, and Center Road on the south. The study area encompasses the following districts: Downtown, Midtown, UNMC, UNO, and the Crossroads and Aksarben Village areas.

A portion of the project study area once included a major streetcar system. Incorporated in 1886 and making its last run in 1955, the streetcar system connected Omaha with Council Bluffs, Iowa over the Missouri River via the Douglas Street Bridge. Some of the tracks from this streetcar system are still embedded in Downtown streets and adjacent

Figure 1 Study Area

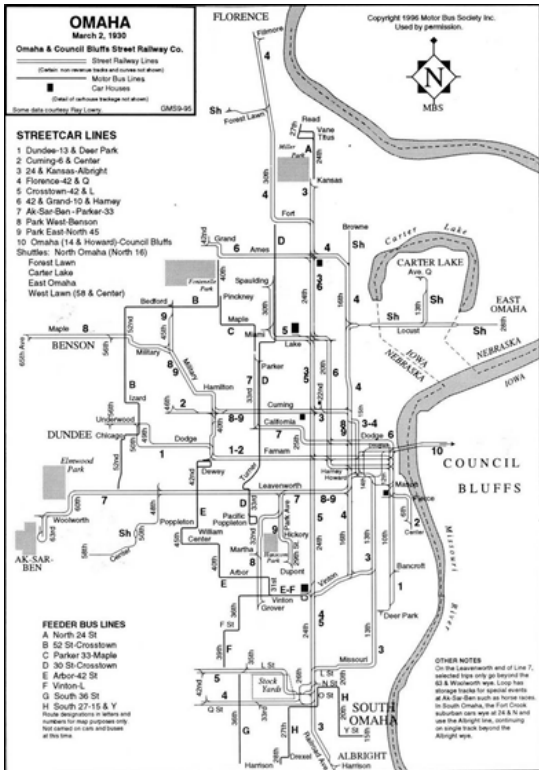


neighborhoods. A map of historic streetcar service is shown in Figure 2.

The study area is a medium-to-dense urban core that includes the highest concentration of population and employment in the region. It is also home to many of the region's historic, cultural, and visitor attractions, such as the Durham Western Heritage Museum, Omaha Civic Auditorium, CenturyLink Center, TD Ameritrade Park, Holland Performing Arts Center, Omaha Children's Museum, Bemis Center for Contemporary Arts, Heartland of America Park and Fountain, and the Joselyn Art Museum.

Table 2 describes districts within the study area, while Figure 3 shows the location of these districts.

Figure 2 Historic Streetcar Service

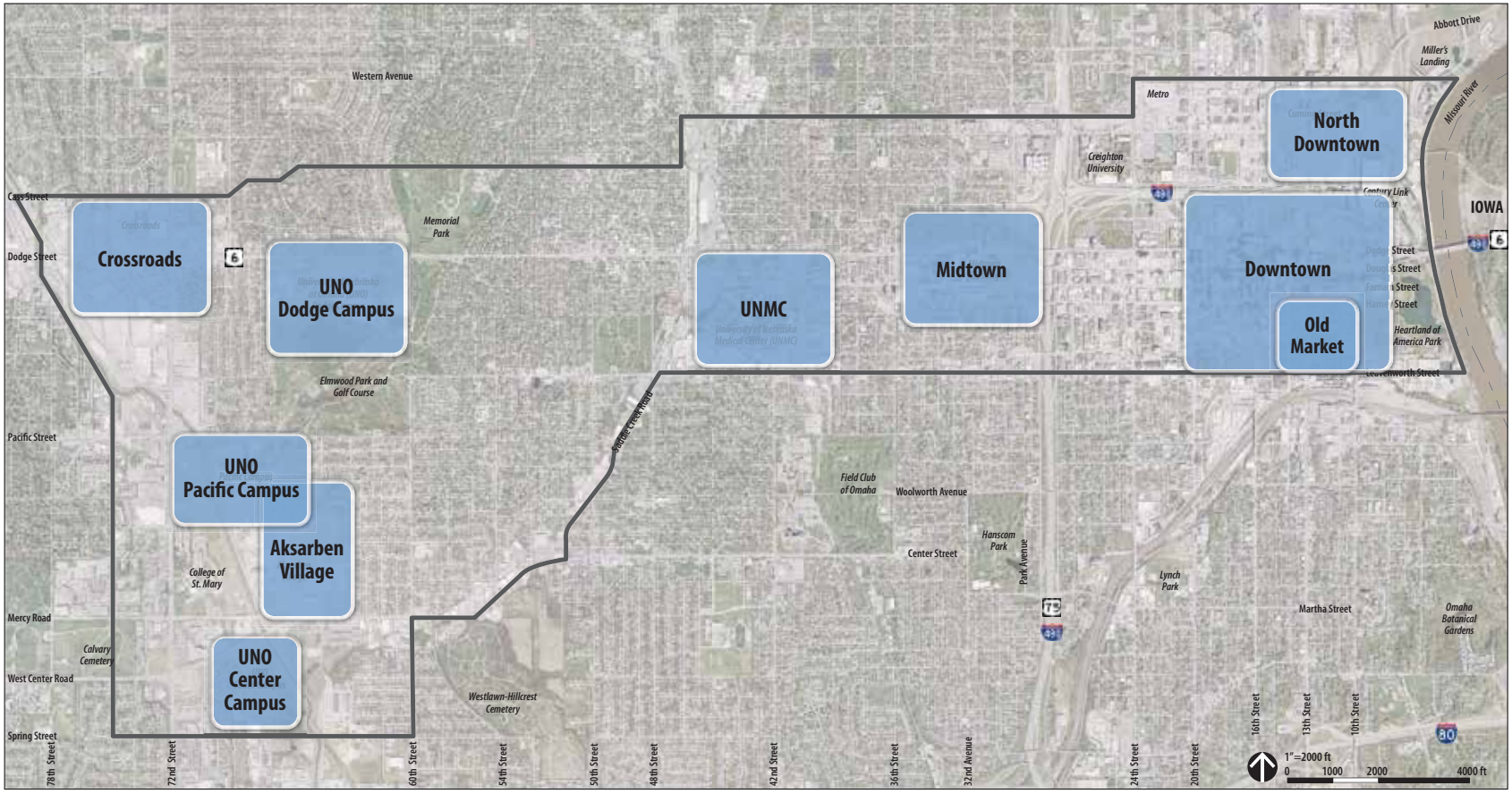


Downtown Omaha
Source*: Downtown Omaha Master Plan*

Table 2 Districts

District	Description
Downtown	Downtown includes the largest concentration of civic, cultural, and employment facilities in Omaha, as well as a growing residential population.
Old Market	Premier arts and entertainment district in Downtown featuring dining, shopping, corporate meeting facilities, hotels, and night life.
North Downtown	Developing mixed-use area with multiple event venues, notably CenturyLink Center and TD Ameritrade Park.
Midtown Crossing	New mixed use development with restaurants, housing, and hotel; adjacent to Mutual of Omaha headquarters.
UNMC	UNMC includes six colleges and two institutes serving more than 3,400 students. Total employment at UNMC and adjacent hospital is over 11,000.
UNO	UNO is the largest university in Omaha with over 15,000 students and offers nearly 200 programs of study on three campuses (Dodge, Pacific, and Center).
Crossroads	The Crossroads Mall is redeveloping to become a mixed-use development with stores, restaurants, and apartments.
Aksarben Village	Research and business district with a mix of uses including dining and entertainment options, residential, shopping, a community park, and hospitality amenities.

Figure 3 Districts



Gene Leahy Park in Downtown Omaha

Filmstreams/Ruth Sokolof Theater in North Downtown

Turner Park at Midtown Crossing

Durham Research Towers at UNMC

1.2.2 Land Use and Development Potential

Existing land use in the study area is characterized by a mix of commercial, industrial, civic, academic, parks, open spaces, high/low density residential, and mixed-use development. In general, the area between Downtown, Midtown, and UNMC is characterized by commercial and civic land uses, along with parks/open spaces and mixed use development. Between UNMC, UNO Dodge Campus, and Crossroads, the land use primarily includes commercial uses in the eastern portion with low density residential, academic, and parks/opens spaces to the west. The area linking Crossroads, UNO Pacific Campus, Aksarben Village, and UNO Center Campus includes more commercial and academic land uses, and some mixed-use development. Existing land use in the study area is shown in Figure 4.

Existing land use correlates to development potential in the study area. The potential development sites are located throughout the study area, but particularly in the corridor that connects Downtown, Midtown, UNMC, UNO, and the Crossroads and Aksarben Village areas. Potential development sites in the study area are shown in Figure 5.

Development potential in Downtown Omaha
Source: *Downtown Omaha Master Plan*

Figure 4 Land Use

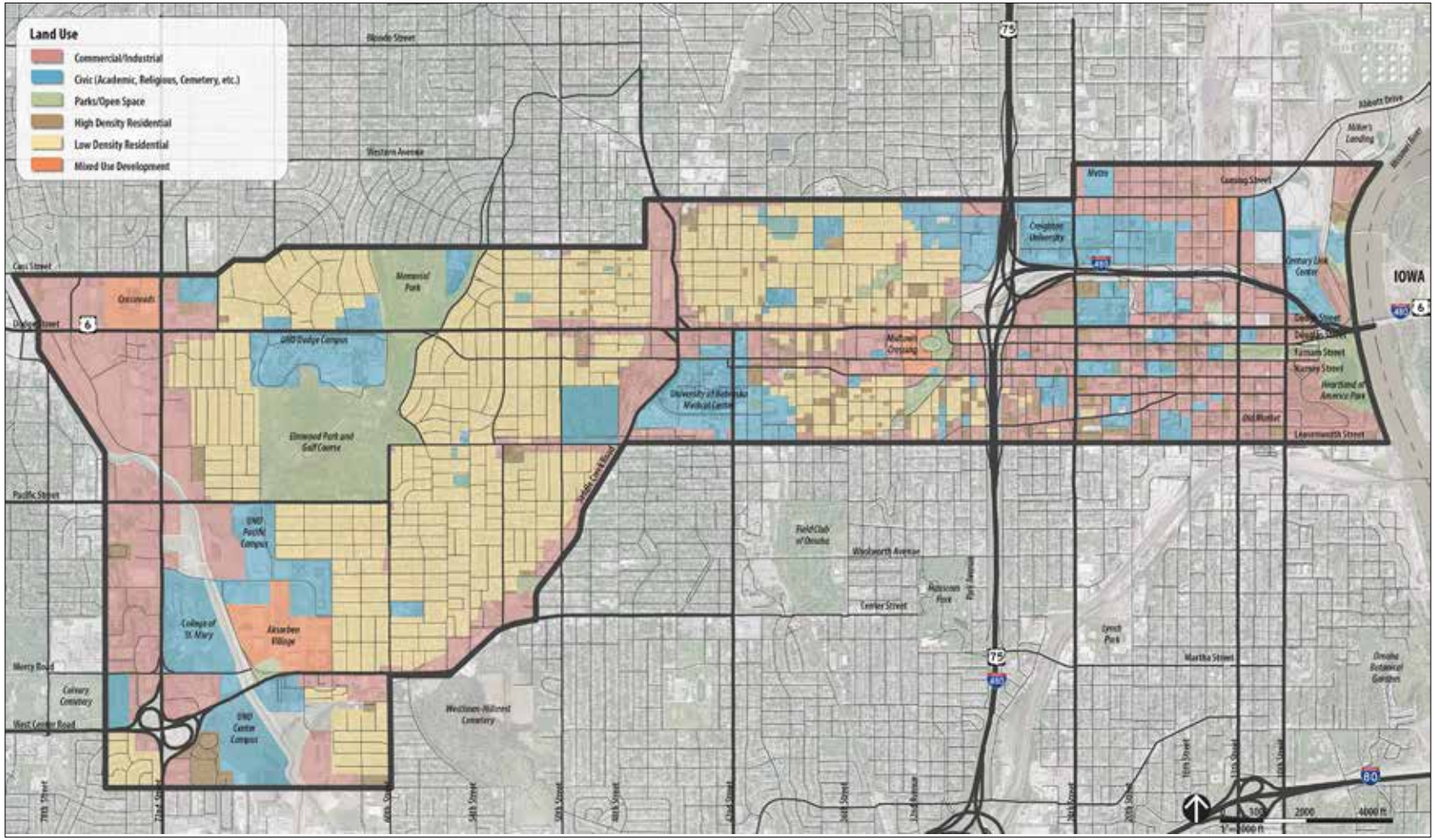
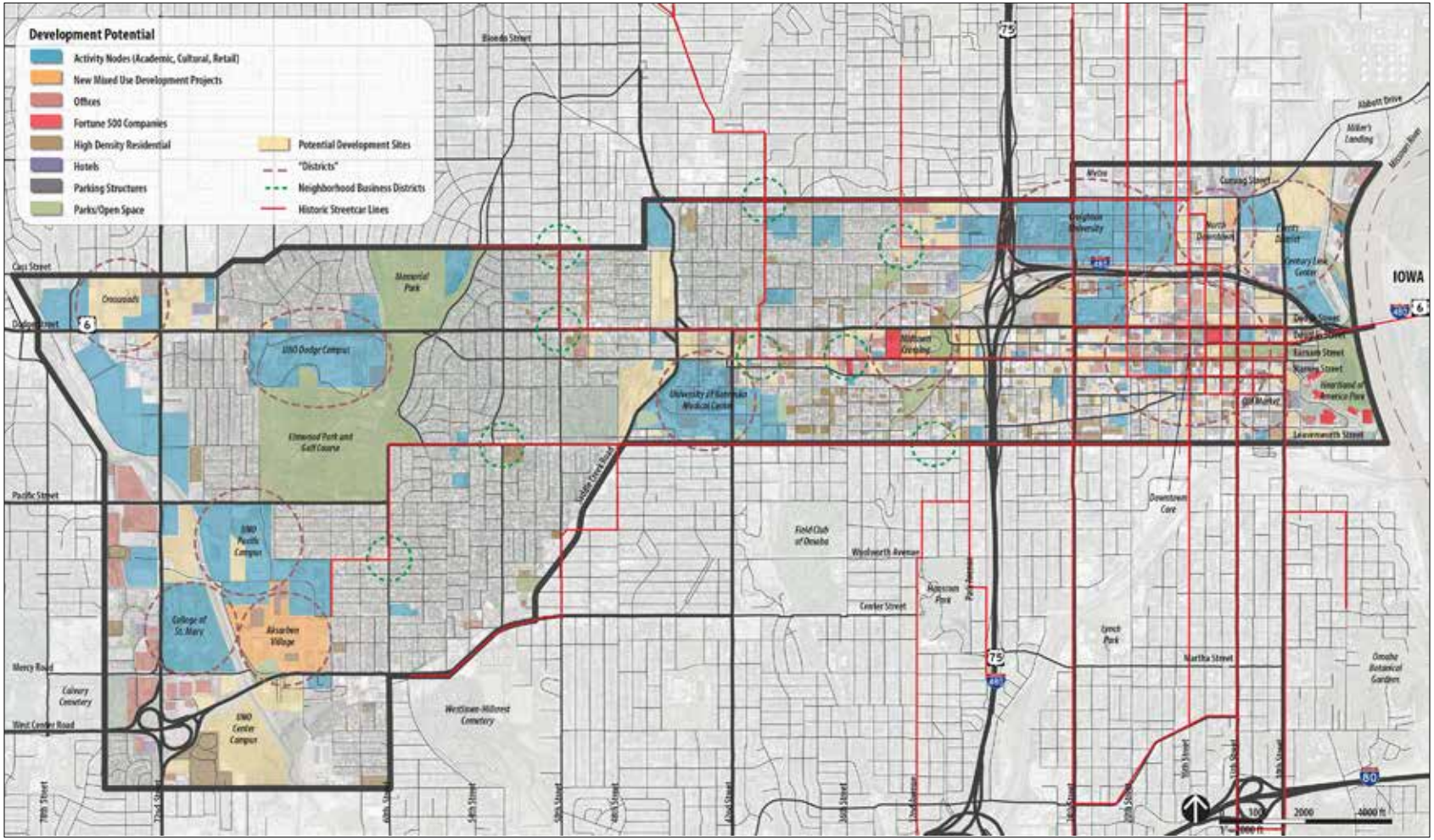


Figure 5 Development Potential



1.2.3 Demographics of Study Area

Existing demographic data for the study area is available from Census 2010. This includes population, population change between 2000 and 2010, households, low income households, zero car households, minority population, population under 18, and population over 65. Employment is not available from Census 2010 but is available from MAPA. The census tracts located in the study area are shown in Figure 6 while study area demographics are summarized by census tract in Table 3. These totals are adjusted according to the percentage of the census tract in the study area. The study area demographics by census tract are shown in Figures 7 through 16.

In general, demographics in the study area are characterized by proximity to the corridor's activity centers: Downtown, Midtown, UNMC, UNO, and Crossroads and Aksarben Village areas. These activity centers have the highest concentration of employment (particularly Downtown, Midtown, UNMC, and UNO) in the study area. The areas surrounding these activity centers generally have the most population, although the largest increase in population between 2000 and 2010 is found in Downtown and around the UNO Pacific and Center Campuses and Aksarben Village. Other demographic trends in the study area are that the area around North Downtown and Creighton University and the area between Downtown and Midtown have the highest percentage of low income households and minority populations, while the latter also has the highest percentage of zero car households.

Demographics of Study Area

- ***Total Population***
- ***Population Change (2000-2010)***
- ***Total Employment***
- ***Employment Change (2000-2010)***
- ***Total Households***
- ***Low Income Households***
- ***Minority Population***
- ***Zero Car Households***
- ***Population 18 and Under***
- ***Population 65 and Older***

Figure 6 Census Tracts

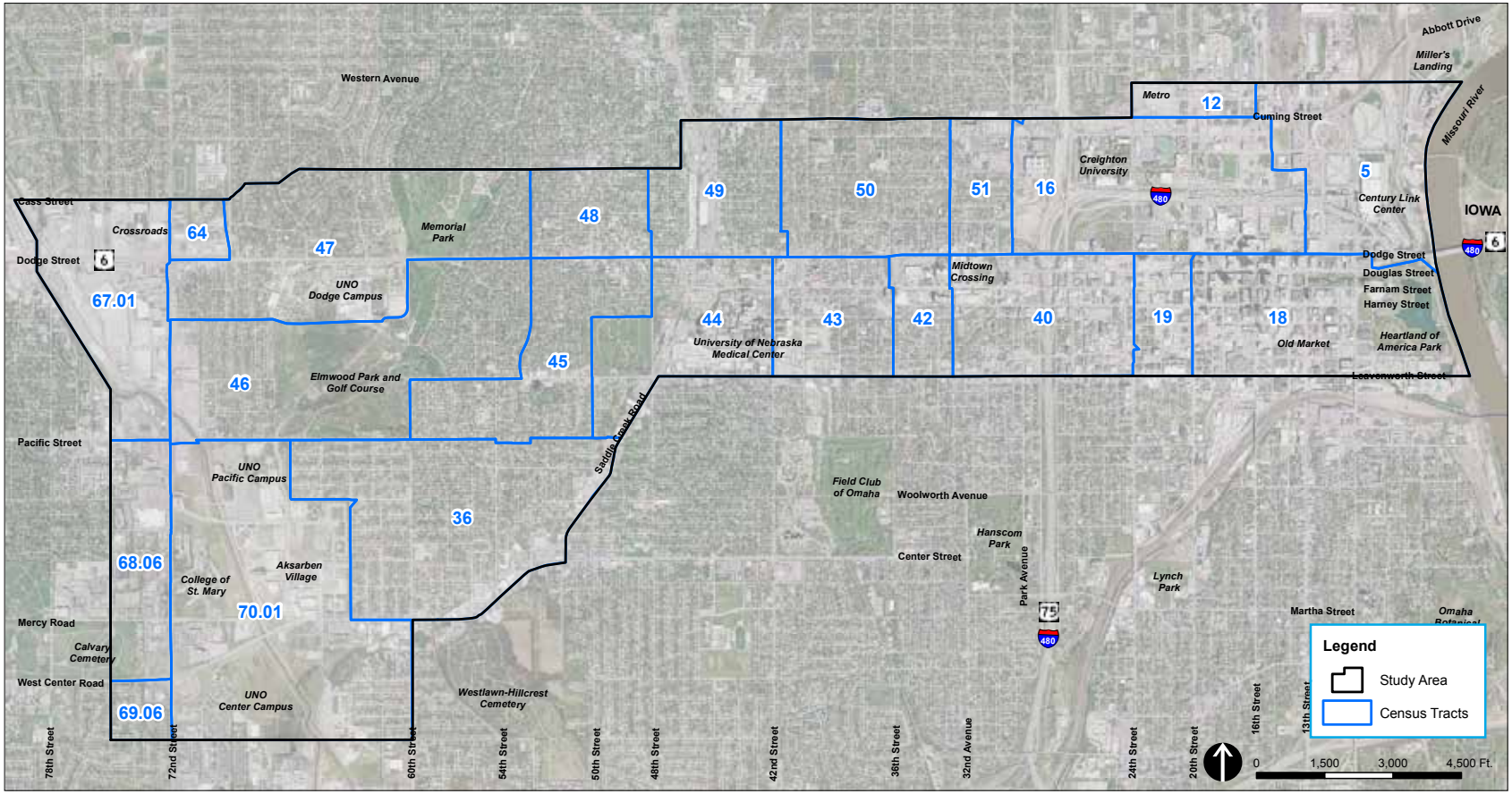


Table 3 Demographics

Census Tract	Total Population (2010)	Percent Population Change (2000-2010)	Total Employment	Percent Employment Change (2000-2010)	Total Households	Low Income Households	Minority Population	Zero Car Households	Population 18 and Under	Population 65 and Older
70.01	2,683	25.09	3,260	-6	1,081	407	614	122	316	249
69.06	232	1.85	100	-21	111	29	19	10	40	57
5	135	40.92	260	21	30	12	45	2	14	7
12	300	9.84	239	0	92	50	250	12	95	20
16	2,577	-3.99	13,035	8	147	147	459	16	51	31
18	2,442	31.85	14,790	80	955	324	685	137	129	75
19	759	-24.39	747	-48	460	257	348	146	133	43
36	4,178	-5.71	2,401	152	2,023	207	289	97	747	468
40	2,731	-8.78	2,631	-32	1,348	889	1,103	507	449	326
42	1,139	10.41	2,988	695	509	165	455	82	266	39
43	1,885	-2.63	1,080	-17	1,070	525	515	279	202	143
44	932	-17.19	2,087	12	450	91	91	41	152	70
45	2,844	-7.33	400	-44	1,453	326	161	60	523	545
46	2,318	-4.18	762	-24	1,049	274	319	110	467	261
47	2,315	10.69	582	-28	606	35	134	25	450	224
48	1,763	0.34	730	-4	934	329	352	120	351	123
49	1,944	-3.18	712	-3	894	433	846	181	441	125
50	3,903	-5.45	871	126	1,768	765	1,336	418	822	237
51	1,167	-11.04	895	636	479	218	637	96	297	69
64	275	-3.11	44	-13	112	28	43	9	62	33
68.06	740	-11.08	3,447	-5	296	104	192	20	153	123
67.01	779	-5.2	2,349	-40	359	76	80	28	166	157
TOTAL	**38,042**	**-1.24**	**54,410**	**18**	**16,226**	**5,690**	**8,974**	**2,517**	**6,326**	**3,425**

Source: *Census 2010, except Total Employment (MAPA 2000 and 2010)*

Note: *2000 and 2010 MAPA employment numbers were compiled using different source data (2000 employment data received from the State of Nebraska and 2010 data received from InfoGroup), but provide the best available comparison.*

Figure 7 Total Population

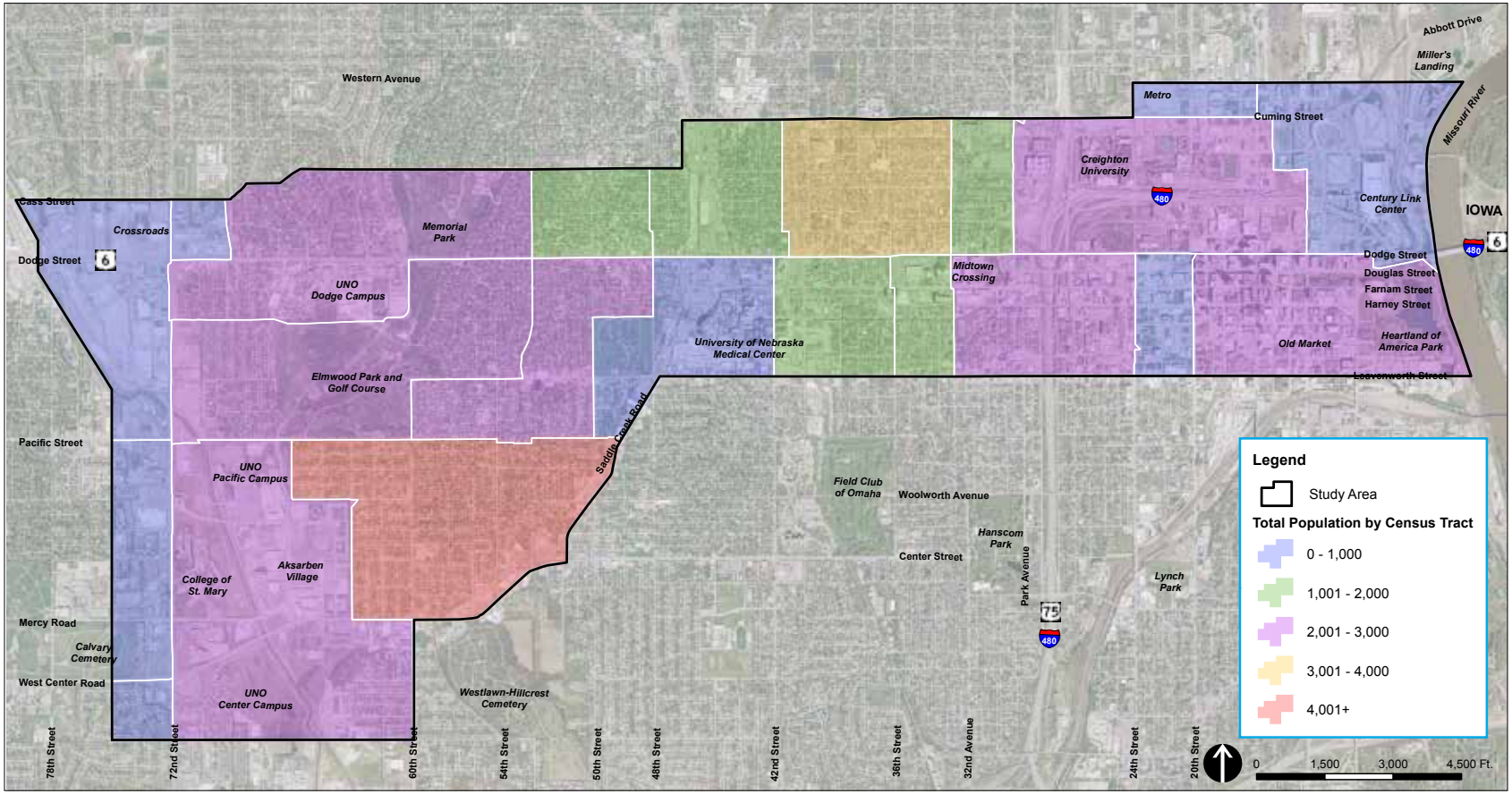


Figure 8 Population Change (2000-2010)

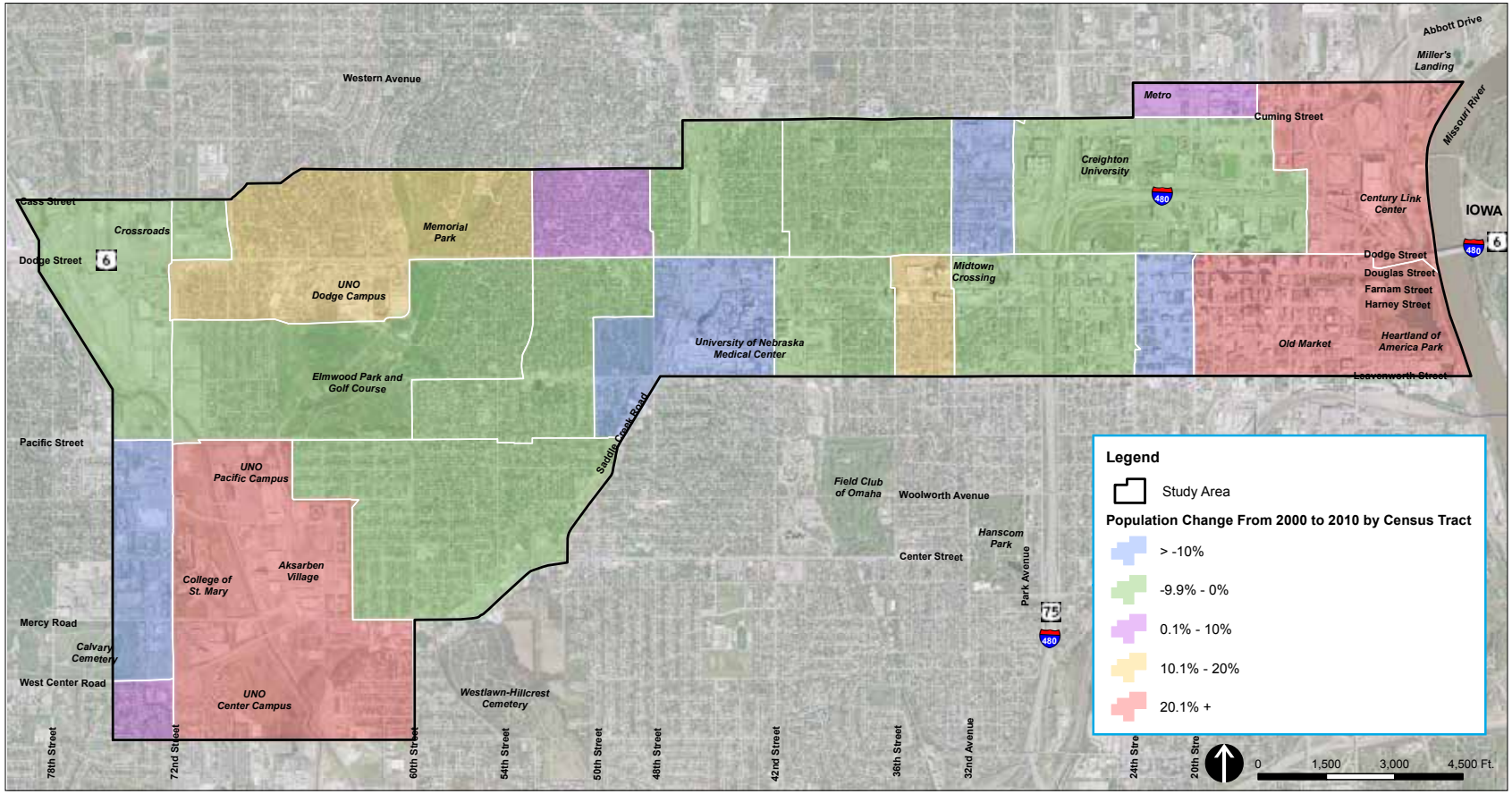


Figure 9 Total Employment

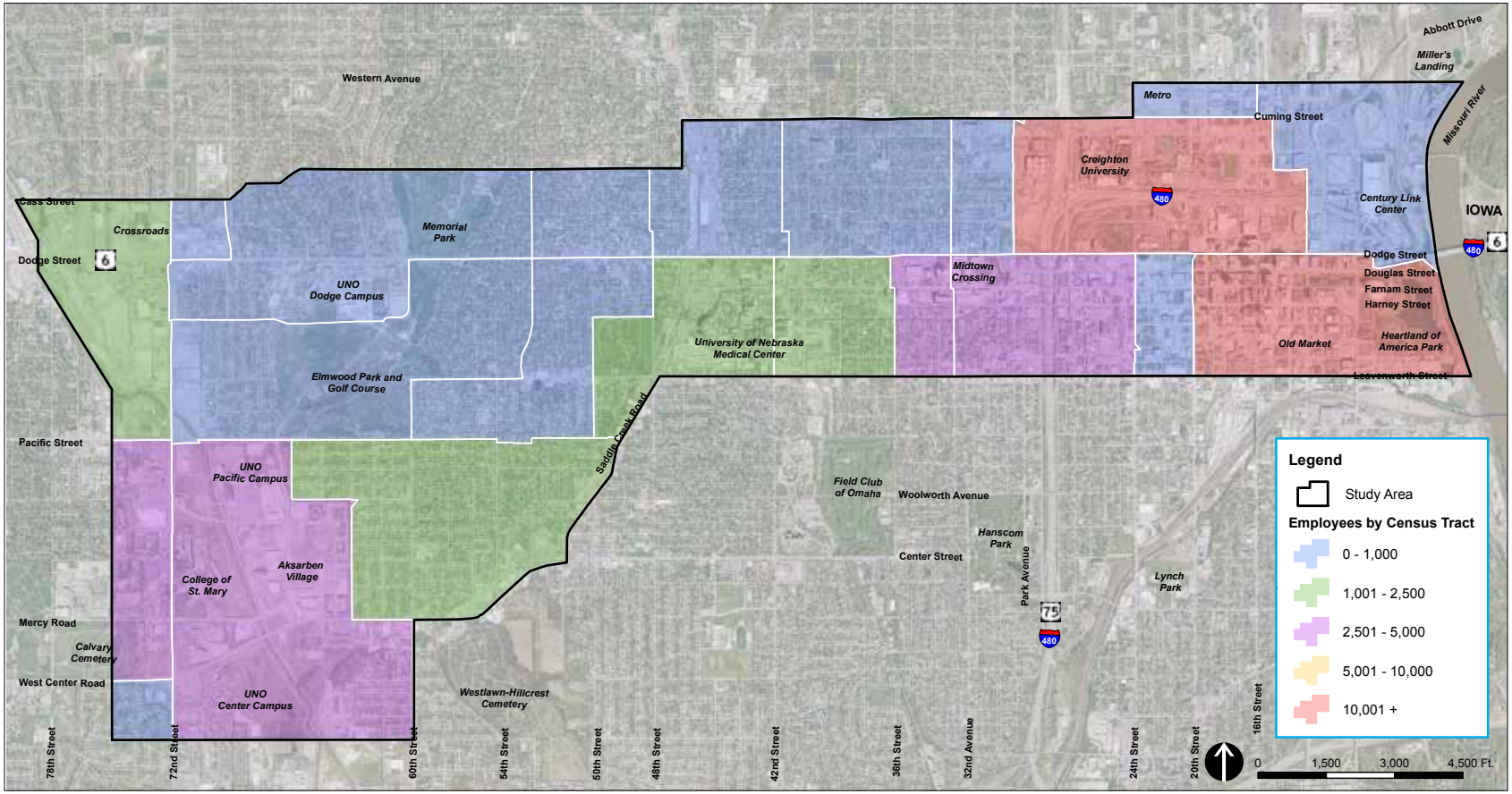


Figure 10 Employment Change (2000-2010)

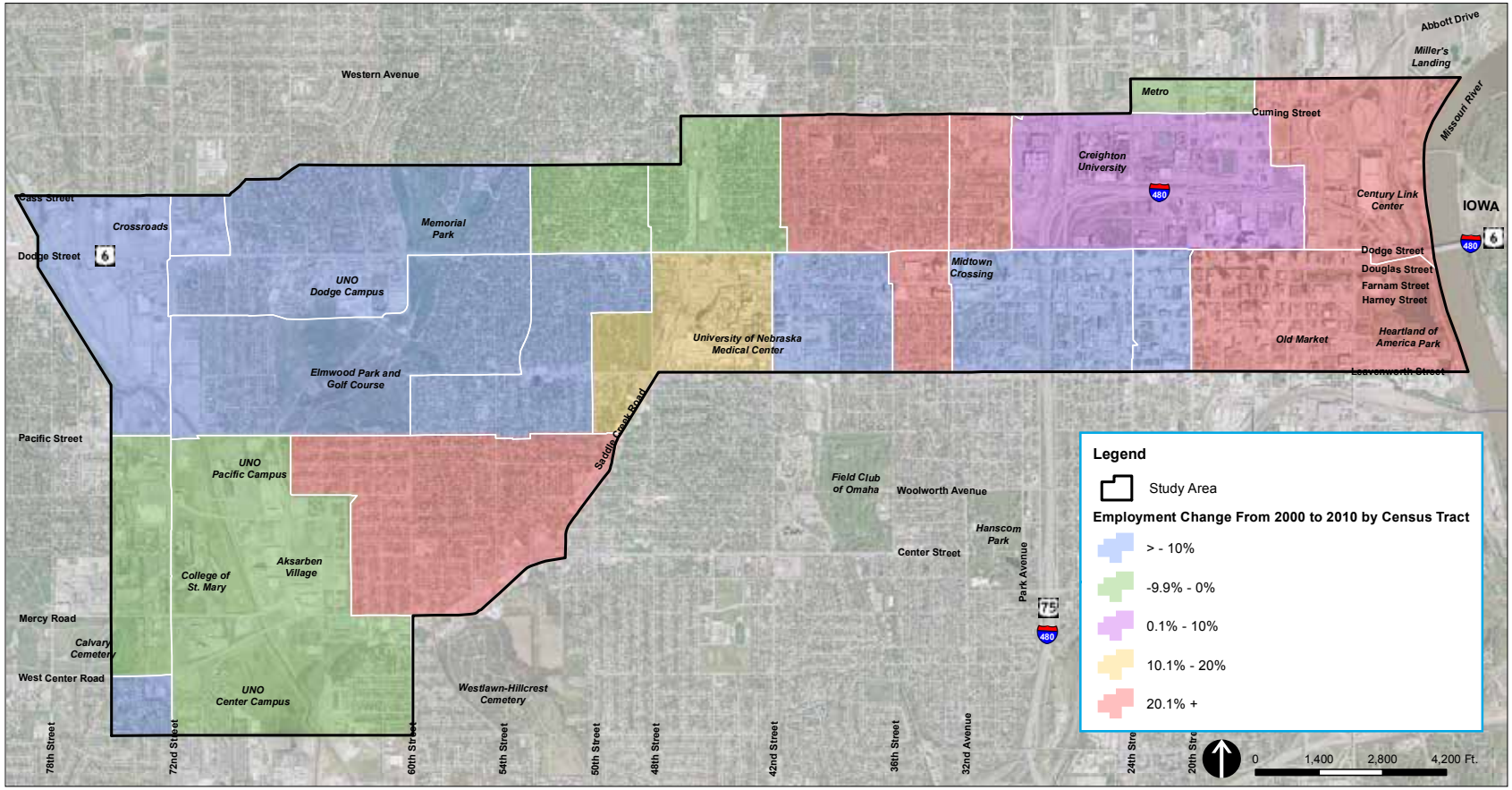


Figure 11 Households

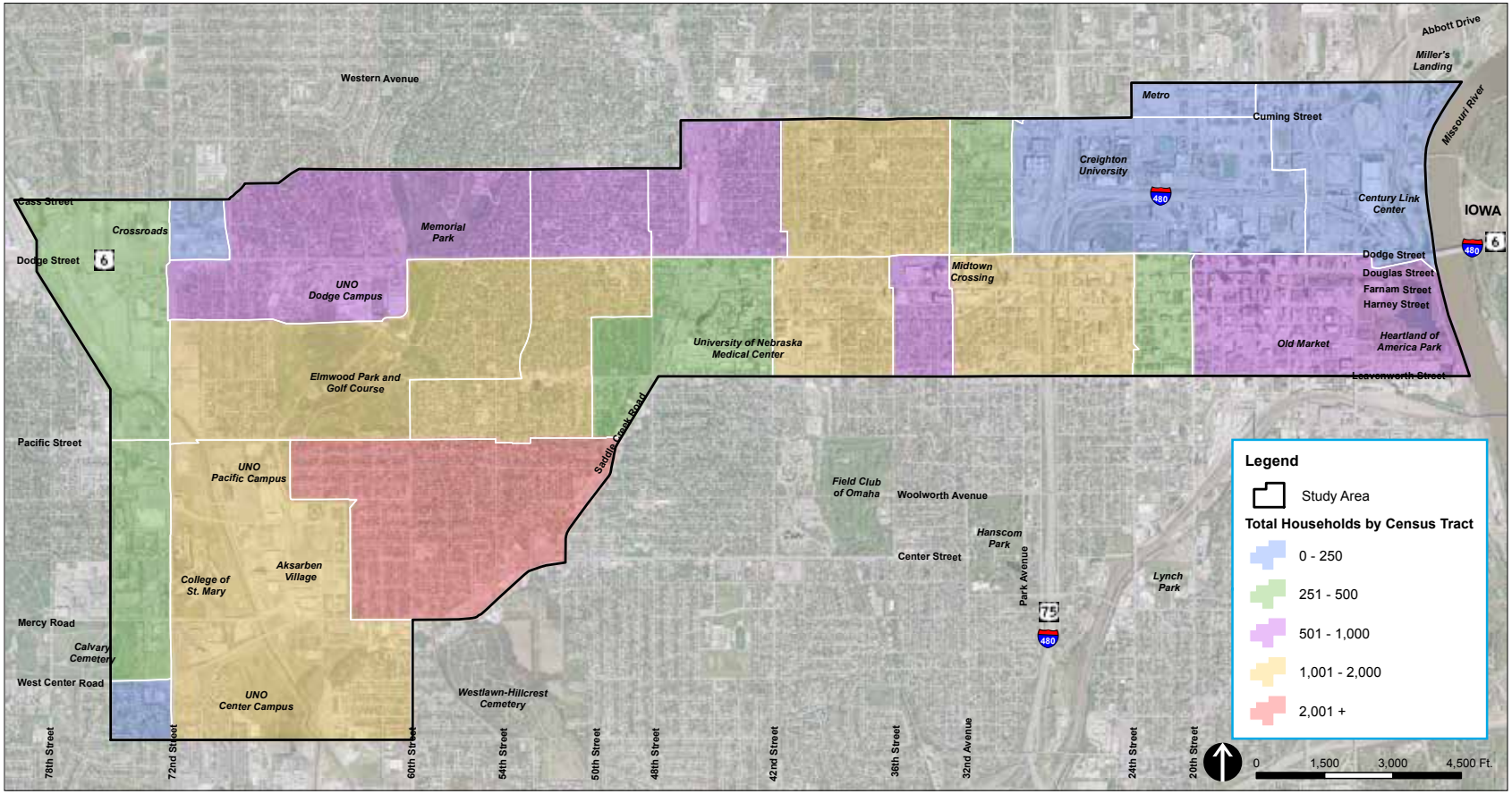


Figure 12 Low Income Households

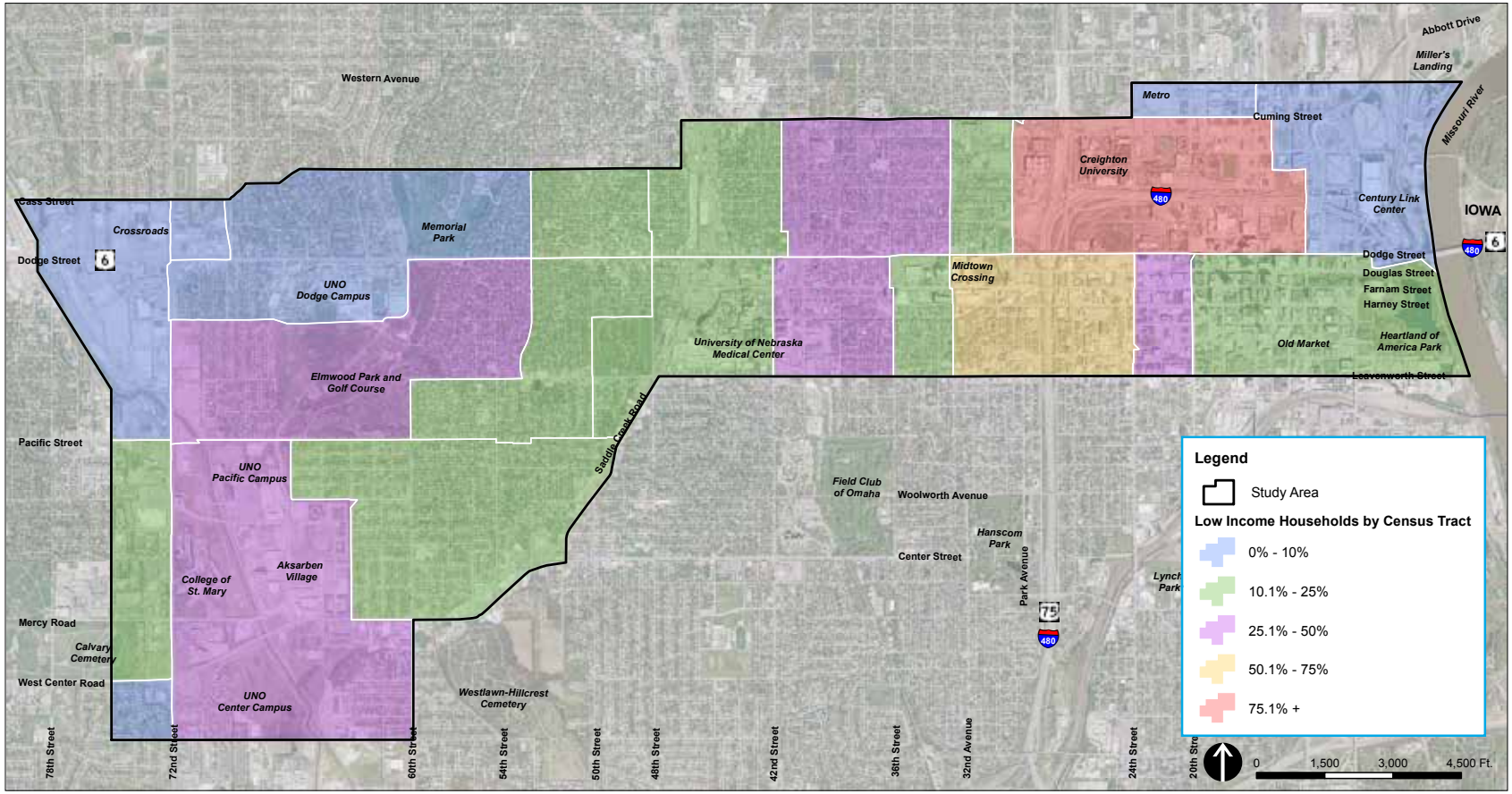


Figure 13 Zero Car Households

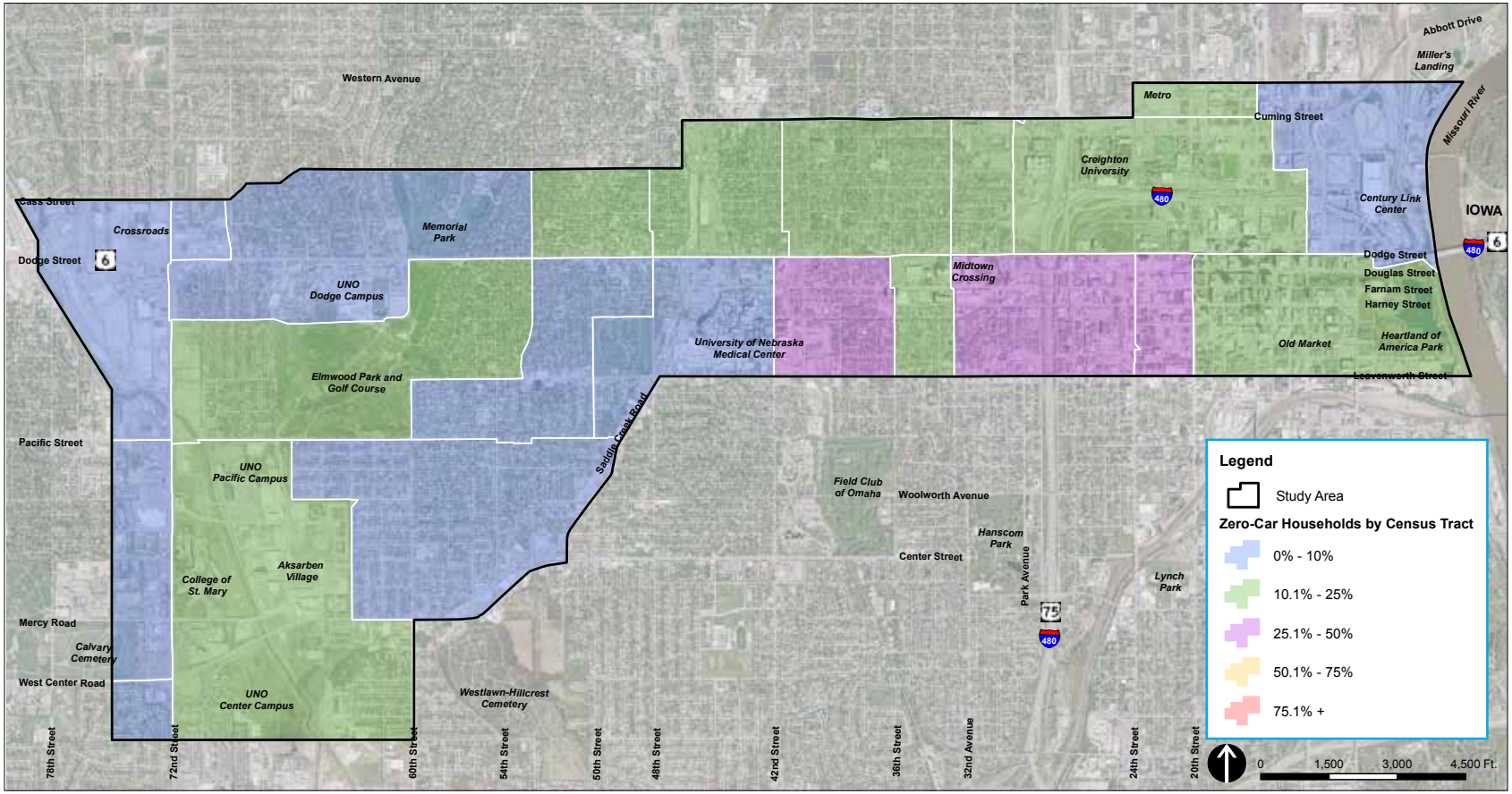


Figure 14 Minority Population by Race

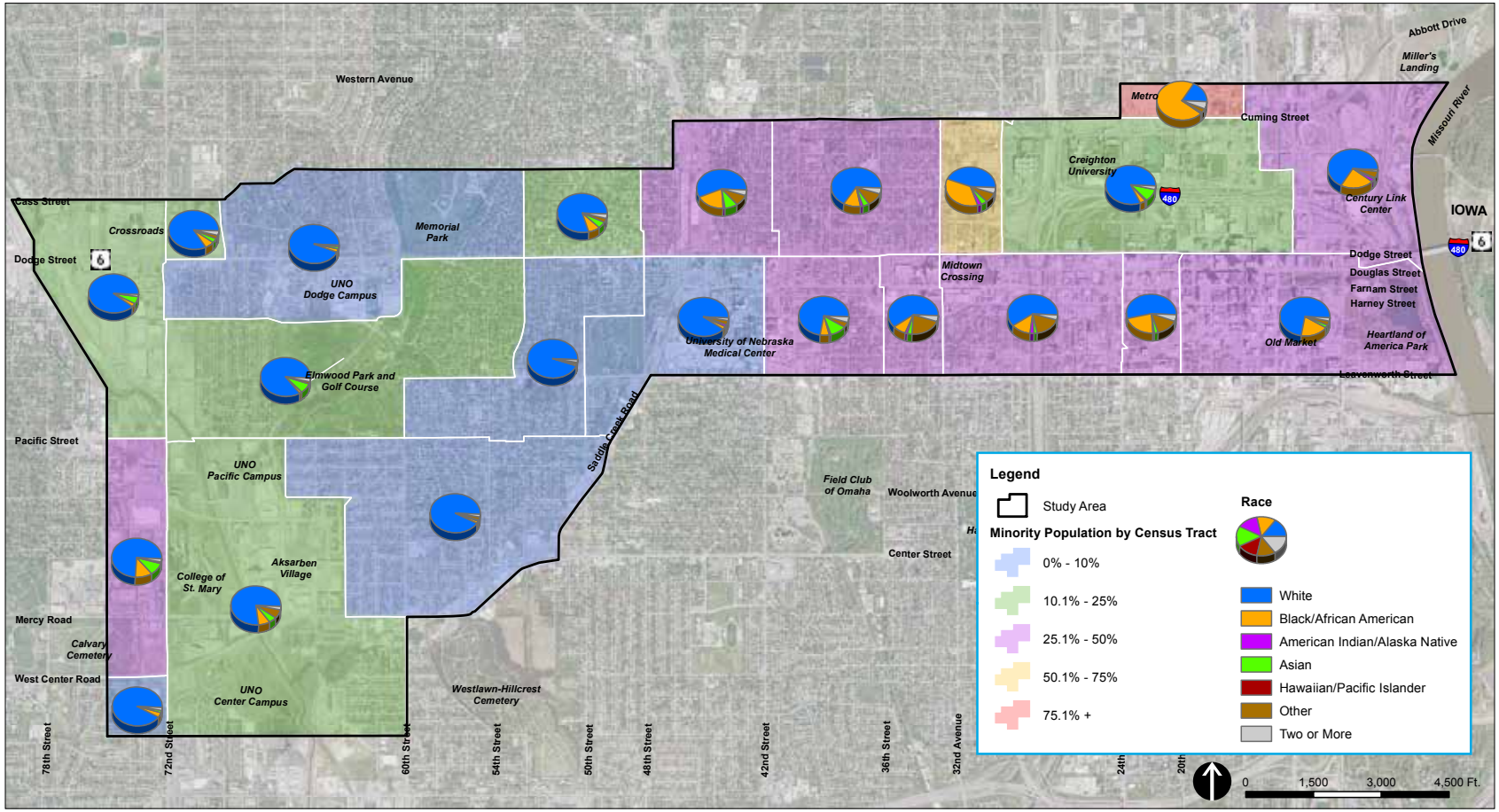


Figure 15 Population Under 18

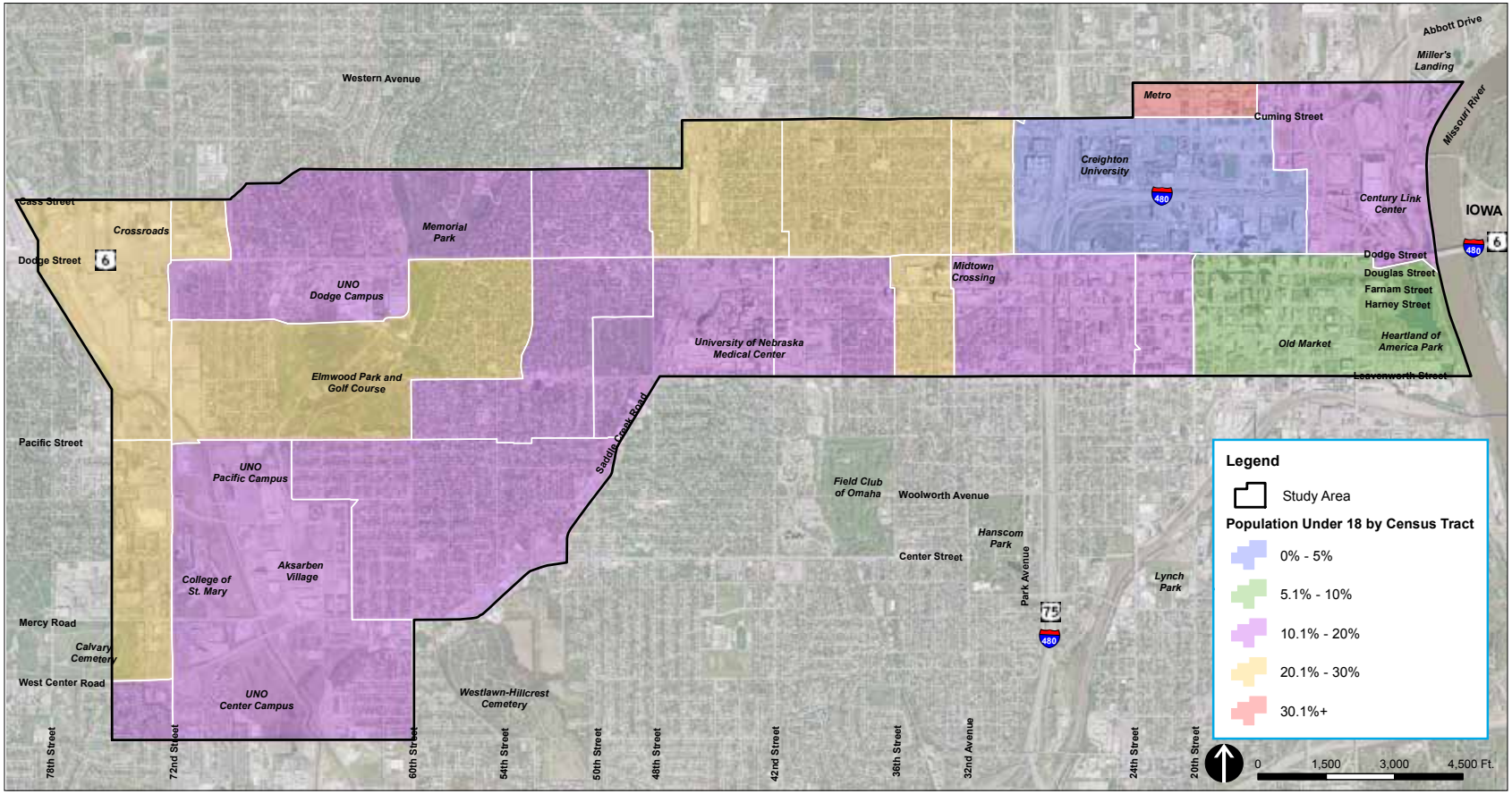
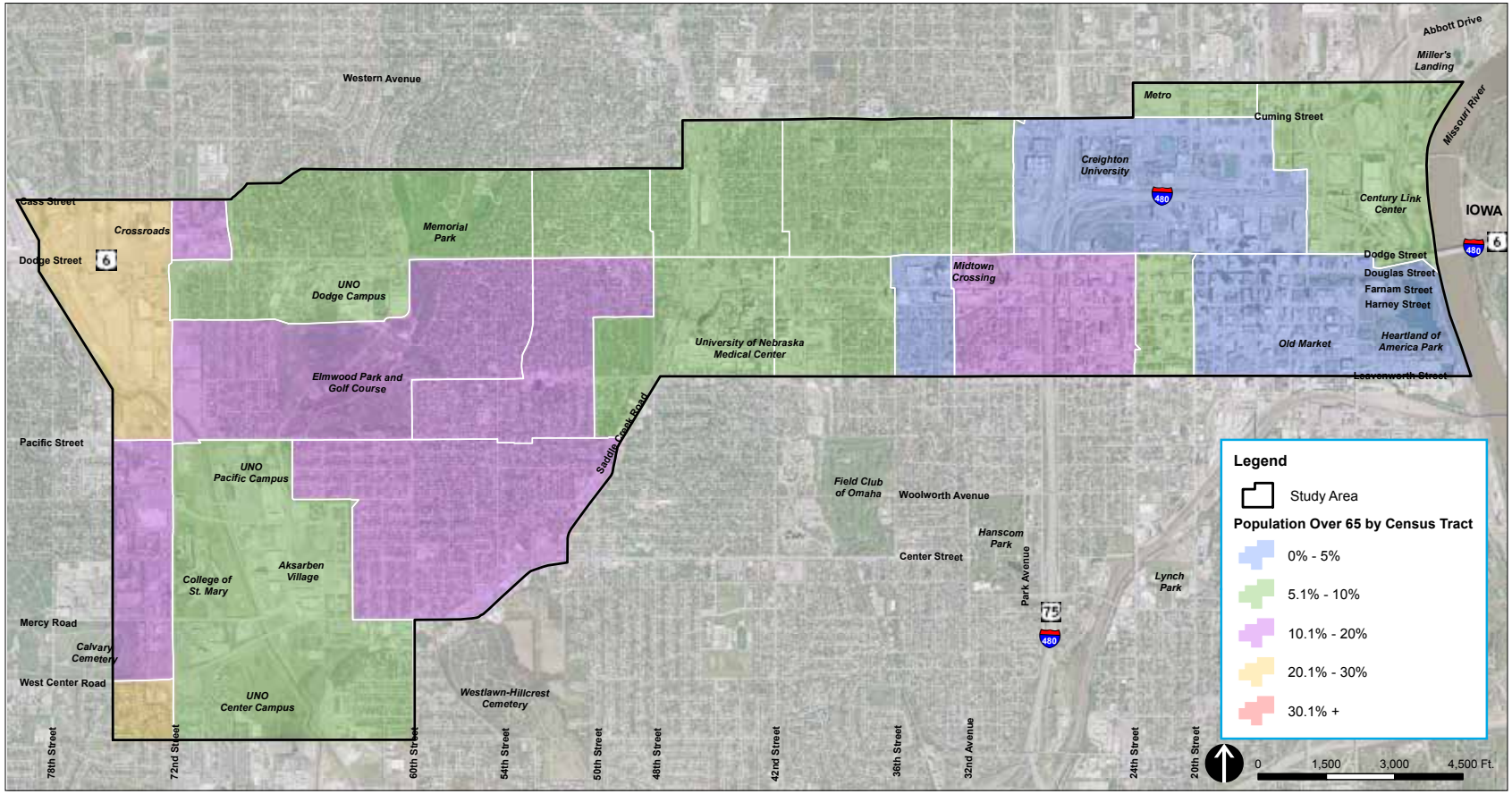


Figure 16 Population Over 65



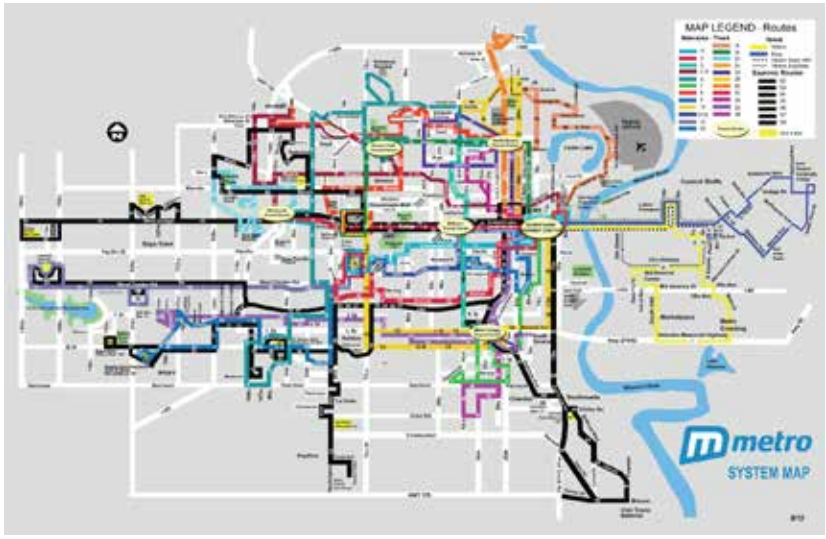
1.2.4 Transit Service in Study Area

Metro is responsible for the operation of fixed route local and express bus service, as well as American with Disabilities Act (ADA) complementary paratransit service (MOBY) within the study area. Metro also operates a Downtown Circulator on weekdays during peak hours as well as the Stadium Circulator during the College World Series in June of each year.

Metro operates a fleet of 138 buses, with an average age of 11 years. Metro's fleet is 100 percent ADA accessible and includes 35 foot and 40 foot buses, as well as cut-a-way vans for MOBY service. Many bus shelters and benches within Metro's service area were built in the 1970s. Shelters and benches are spread out throughout the study area, with a few new stop amenities within the study area.

Metro's core routes, such as the Route 2 on Dodge Street, provide weekday service from 5am-11pm, with 15 minutes service during the peak and 20 minute service during the off-peak. Saturday service is provided between 6am-9pm and Sunday service between 7am-7pm, both with 30 minute frequency. The Green Route (Downtown Circulator) operates during peak hours (5:30am-9:00am and 3:30pm-7:30pm) with 6 minute frequency. Metro local and express bus route coverage in the study area is shown in Figures 17 and 18. The Green Route (Downtown Circulator) and Stadium Circulator are shown in Figures 19 and 20.

Source*: Metro*



Source*: Metro*

Figure 17 Metro Local Bus Routes

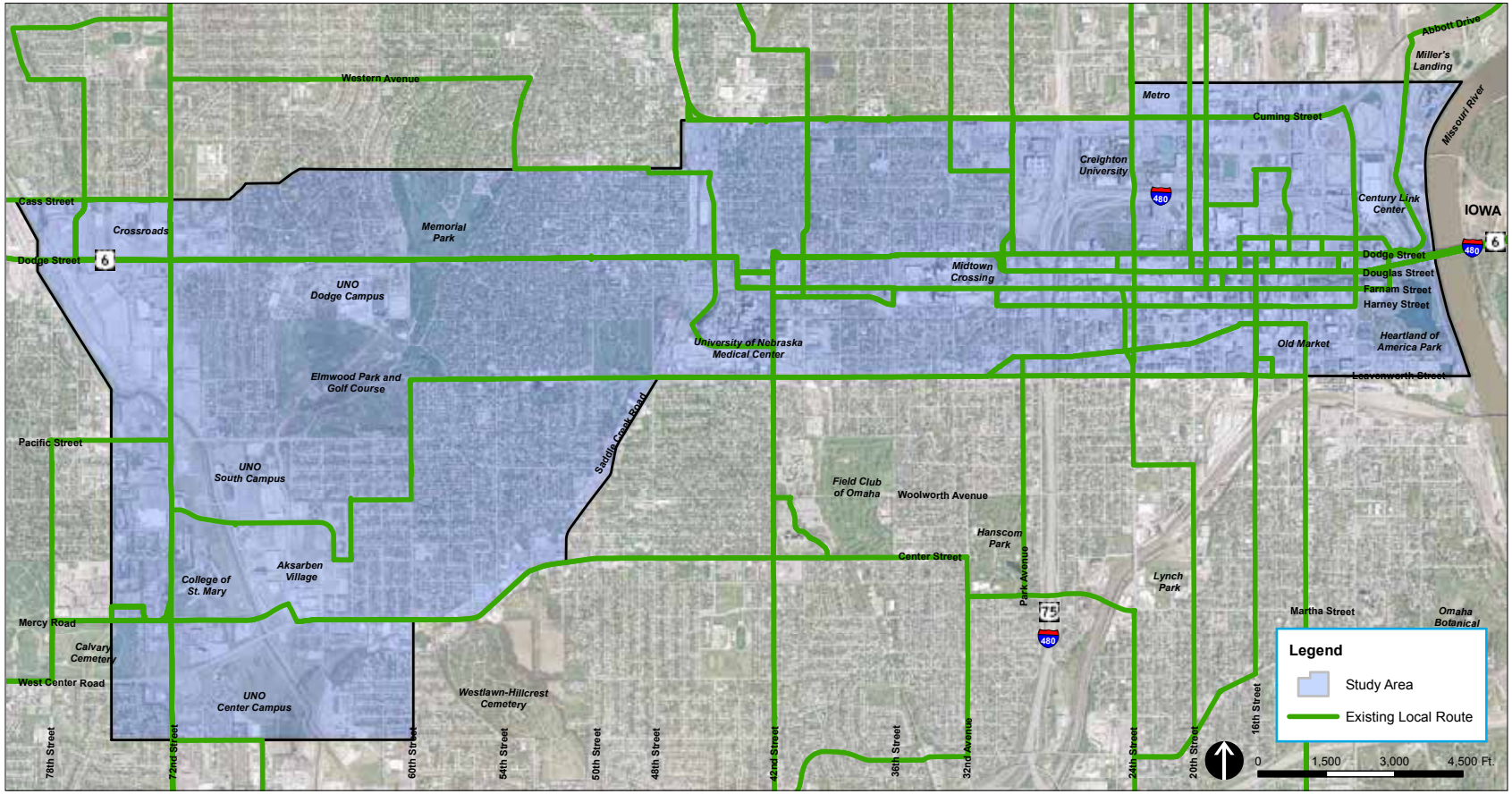


Figure 18 Metro Express Bus Routes

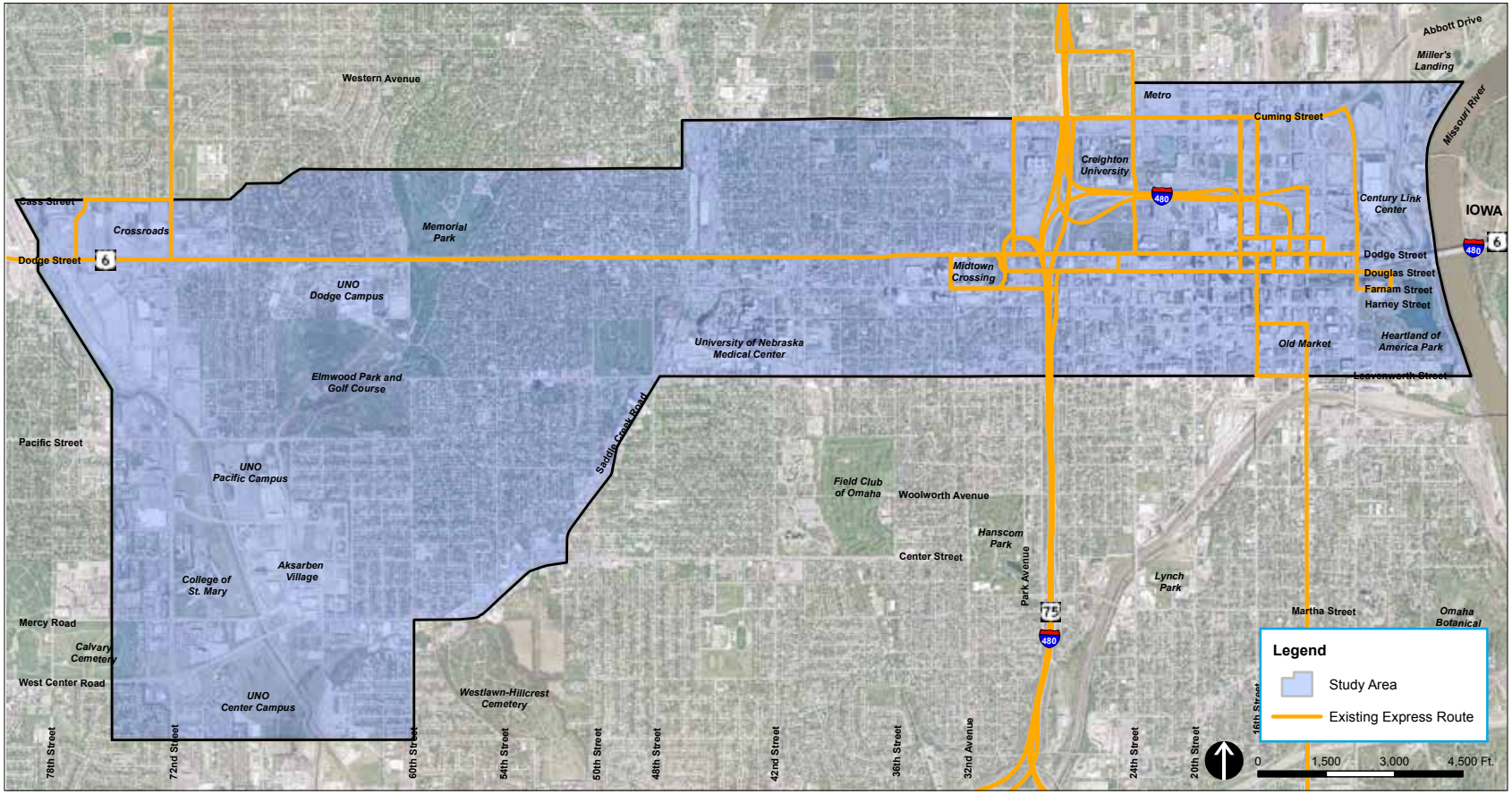
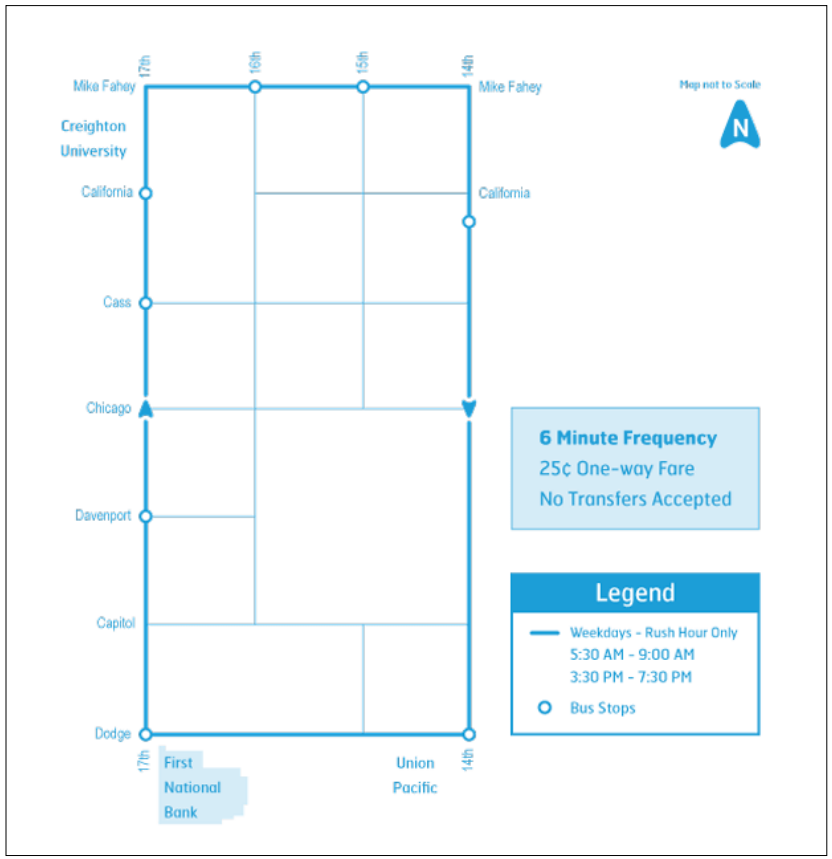
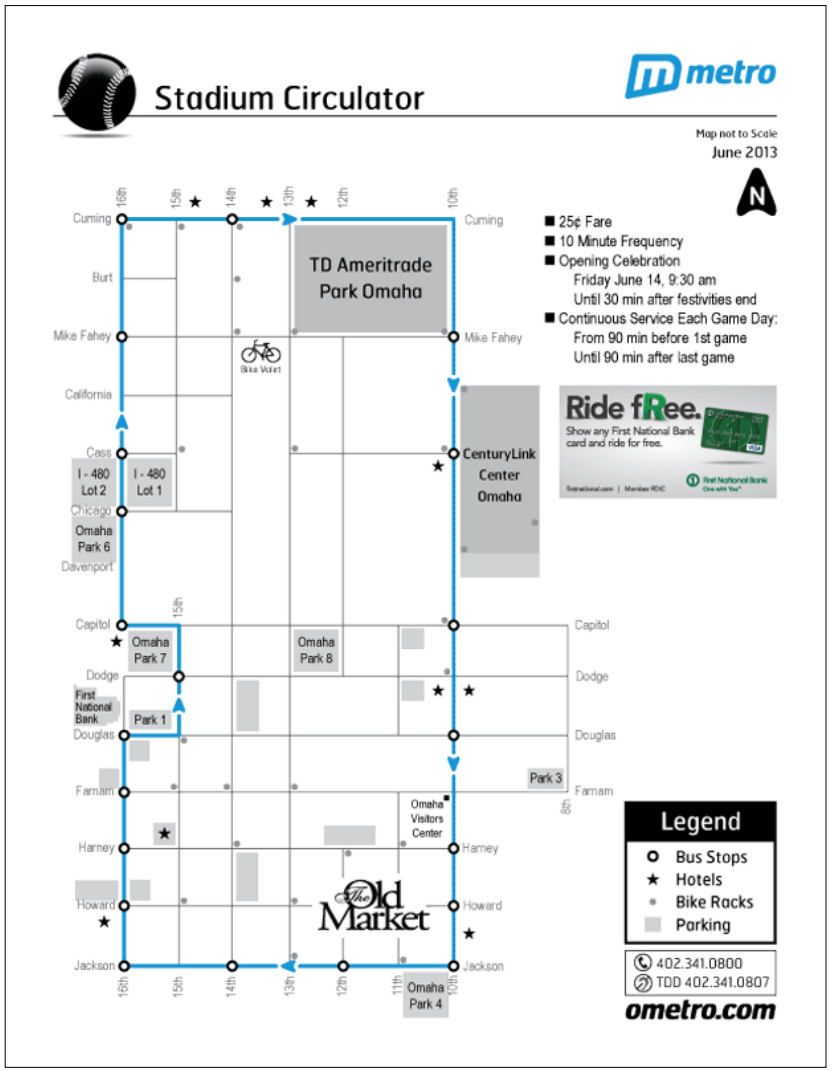


Figure 19 Metro Downtown Circulator (Green Route)



Source: *Metro*

Figure 20 Metro Stadium Circulator



Source: *Metro*

Metro's fares are $1.25 for local bus routes and $1.50 for express bus routes, while transfers are $0.25. The fare for the Green Route (Downtown Circulator) and Stadium Circulator is $0.25 and no transfers are allowed. There are a number of fare discounts for students, children, and seniors, disabled, and Medicare passengers with Metro identification.

Metro is currently in the process of planning a new Downtown transit center, which will reorient much of the downtown bus service network. Currently, Metro uses an on-street transit facility on 16th Street between Dodge Street and Howard Street.

Ridership

Metro weekday ridership data is provided for April 2012, with ridership for the total system shown in Table 4 and the study area shown in Table 5. This data shows that the total average weekday ridership for the Metro bus system is 14,877. The highest ridership Metro bus routes are the Route 2 (Dodge), 13 (Beltway South), 18 (Beltway North), and 30 (Florence). Each of these routes serves over 1,000 riders per day, with the Routes 2 and 18 serving over 1,600 riders per day. All of these routes with the highest ridership serve the study area, with the Route 2 (Dodge) providing east/west service throughout the length of the corridor.

Bus stop on Farnam Street and 31st Street at Midtown Crossing

Table 4 Metro Weekday Ridership (System)

Route	Total Weekday Ridership	Average Weekday Ridership	Weekday Miles	Weekday Hours	Passengers per Mile	Passengers per Hour
1	887	42	98.71	6.93	0.4	6.1
2	35,580	1,694	939.82	75.43	1.8	22.5
3	14,955	712	471.86	35.80	1.5	19.9
4	14,636	697	590.85	40.55	1.2	17.2
5	12,015	572	840.22	51.93	0.7	11.0
7	16,905	805	534.59	45.30	1.5	17.8
8	9,174	437	653.11	44.20	0.7	9.9
9	2,940	140	159.93	13.10	0.9	10.7
11	10,360	493	552.44	43.83	0.9	11.3
13	21,209	1,010	881.18	64.10	1.1	15.8
14	15,060	717	807.45	54.25	0.9	13.2
15	14,419	687	839.43	59.88	0.8	11.5
16	2,058	98	236.28	13.45	0.4	7.3
18	33,951	1,617	1,079.30	82.82	1.5	19.5
22	2,729	130	246.51	15.33	0.5	8.5
24	11,397	543	282.02	30.00	1.9	18.1
25	2,508	119	179.97	12.63	0.7	9.5
26	4,995	238	206.42	14.93	1.2	15.9
30	23,788	1,133	519.15	41.87	2.2	27.1
32	6,379	304	394.48	34.15	0.8	8.9
34	456	22	58.19	3.17	0.4	6.9
35	11,850	564	346.57	29.73	1.6	19.0
48	769	37	110.44	6.93	0.3	5.3

(Table continues on next page)

Table 4 (cont)

Route	Total Weekday Ridership	Average Weekday Ridership	Weekday Miles	Weekday Hours	Passengers per Mile	Passengers per Hour
55	14,794	704	720.51	52.25	1.0	13.5
92	3,501	167	200.03	9.55	0.8	17.5
93	673	32	122.97	5.27	0.3	6.1
94	965	46	140.04	5.80	0.3	7.9
95	1,119	53	99.36	5.12	0.5	10.4
96	922	44	99.25	4.88	0.4	9.0
97	3,255	155	265.40	11.33	0.6	13.7
98	904	43	107.91	6.10	0.4	7.1
Green	3,110	148	164.16	16.20	0.9	9.1
Blue	7,389	352	333.82	23.92	1.1	14.7
Yellow	6,546	312	331.22	22.60	0.9	13.8
Other	215	10				
TOTAL	**312,415**	**14,877**	**13,613.59**	**983.33**	**1.1**	**15.1**

Source: *Metro, April 2012*

Table 5 Metro Weekday Ridership (Study Area)

Route	Total Weekday Ridership	Average Weekday Ridership	Weekday Miles	Weekday Hours	Passengers per Mile	Passengers per Hour
2	35,580	1,694	939.82	75.43	1.8	22.5
3	14,955	712	471.86	35.80	1.5	19.9
4	14,636	697	590.85	40.55	1.2	17.2
7	16,905	805	534.59	45.30	1.5	17.8
8	9,174	437	653.11	44.20	0.7	9.9
9	2,940	140	159.93	13.10	0.9	10.7
11	10,360	493	552.44	43.83	0.9	11.3
13	21,209	1,010	881.18	64.10	1.1	15.8
14	15,060	717	807.45	54.25	0.9	13.2
15	14,419	687	839.43	59.88	0.8	11.5
16	2,058	98	236.28	13.45	0.4	7.3
18	33,951	1,617	1,079.30	82.82	1.5	19.5
24	11,397	543	282.02	30.00	1.9	18.1
30	23,788	1,133	519.15	41.87	2.2	27.1
32	6,379	304	394.48	34.15	0.8	8.9
34	456	22	58.19	3.17	0.4	6.9
35	11,850	564	346.57	29.73	1.6	19.0
55	14,794	704	720.51	52.25	1.0	13.5
92	3,501	167	200.03	9.55	0.8	17.5
93	673	32	122.97	5.27	0.3	6.1
94	965	46	140.04	5.80	0.3	7.9

(Table continues on next page)

Table 5 (cont)

Route	Total Weekday Ridership	Average Weekday Ridership	Weekday Miles	Weekday Hours	Passengers per Mile	Passengers per Hour
95	1,119	53	99.36	5.12	0.5	10.4
96	922	44	99.25	4.88	0.4	9.0
97	3,255	155	265.40	11.33	0.6	13.7
98	904	43	107.91	6.10	0.4	7.1
Blue	7,389	352	333.82	23.92	1.1	14.7
Yellow	6,546	312	331.22	22.60	0.9	13.8
TOTAL	**285,185**	**13,581**	**11,767.16**	**858.45**	**0.98**	**13.71**

Source: *Metro, April 2012*
Note: *The data in this table reflects the ridership, miles, and hours of the routes in their entirety and is not isolated to the study area.*

1.3 Statement of Need

This section describes the existing problems and deficiencies within the study area to demonstrate the need for the project. In evaluating the existing conditions in the study area, the themes below emerged which describe the need for the project.

STATEMENT OF NEED

- *Spatially disconnected activity centers*
- *Lack of transit priority corridor*
- *Increased transit demand from population and employment growth*
- *Imbalanced parking availability and capacity*
- *Poor trip circulation for special events*
- *Lack of transit access to jobs*
- *Lack of adequate stop and service amenities*
- *Sustainability goals/measures in adopted plans*

1.3.1 Spatially Disconnected Activity Centers

Activity centers and districts within and adjacent to the study area are spatially disconnected due to its size, topography, street grid, and location of freeways. The study area is large in size and stretches approximately 6 miles from Downtown on the east to Crossroads on the west, and 2 miles from Crossroads on the northwest and Aksarben Village on the southwest.

Topography poses a challenge for pedestrians and bicyclists who walk or bike to bus stops, many of which exceed a comfortable walking distance of a quarter- to half-mile bus service access. Steep grades to the west of UNMC rise 67 feet on Farnam Street between 46th and 48th Streets with an average slope of 9.3 percent. In addition, steep grades around UNMC rise 34 feet on Farnam Street between 42nd and 41st Streets with an average slope of 10.3 percent.

Distances between key activity centers and districts which can create voids of investment and activity:

North Downtown to Old Market	*0.9 miles*
Old Market to Midtown	*1.8 miles*
Midtown to UNMC	*1.0 mile*
UNMC to UNO Dodge Street Campus	*1.8 miles*
Downtown to Crossroads	*5.0 miles*
Crossroads to Aksarben Village	*1.9 miles*

Interstate 480 divides the study area, with six bridges and two streets connecting both sides, which limits opportunities for effective pedestrian and bicycle movement. Sidewalk quality is poor at times, or nonexistent, and interruptions to the street grid network are commonplace. The Gene Leahy Mall, Doubletree Hotel on 16th Street, and a few large activity and shopping centers also create barriers for direct pedestrian and bicycle trips.

Weather conditions can limit pedestrian and bicycle circulation to bus stops and shelters. When temperatures drop below 32 degrees Fahrenheit during five months out of the year and the average precipitation is 2 inches per month for seven months out of the year, traveling comfortably as a pedestrian or cyclist within the study area becomes difficult.

The combination of these spatial factors means that many trips within the study area often exceed a comfortable walking distance of a quarter- to half-mile, and inhibit pedestrian circulation to and from bus stops, especially stops without shelters and benches.

Interstate 480 divides Downtown from Midtown and UNMC

1.3.2 Lack of Transit Priority Corridor

Metro provides a high level of bus service to and from Downtown, but this service is a complex network of over a dozen bus routes, many of which require long transfer waits along the study corridor which can be confusing and time consuming to riders and can make trips difficult to navigate. No single bus route effectively serves the Downtown core and nearby activity centers, making the choice to use Metro more difficult than walking or driving in many instances. For example, the distance between TD Ameritrade Park and the Old Market is just under a mile, yet walking between these points is often faster than taking the bus due to the lack of direct and frequent service. The exception is during the College World Series in June when Metro operates the Stadium Circulator with a simple route structure and 10 minute frequency.

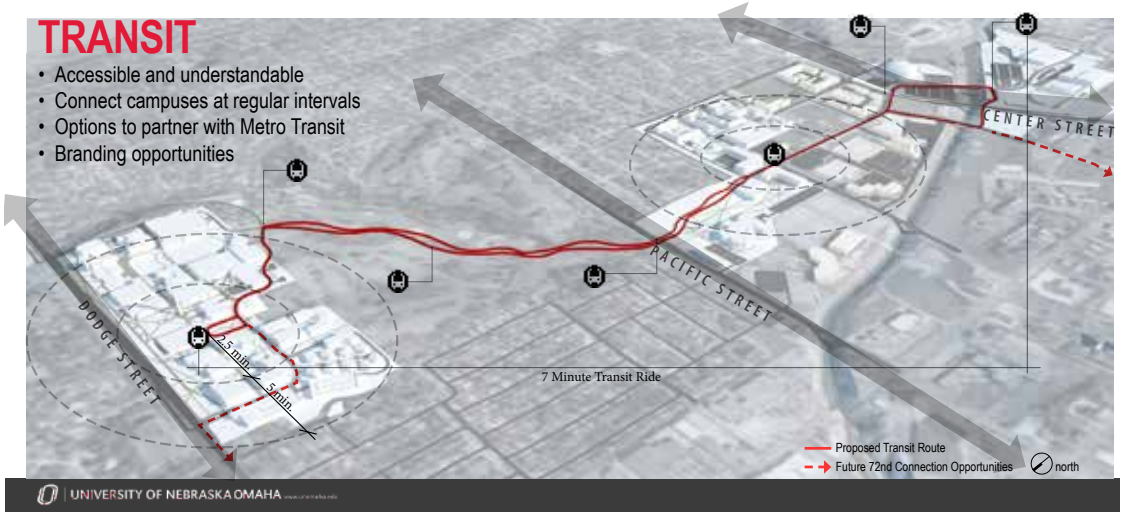
The success of the Stadium Circulator demonstrates the need to serve Downtown and surrounding travel markets with a high quality transit service. On the other hand, the Green Route (Downtown Circulator) is limited to the peak hour and does not provide service during lunch hour or late evenings when many workers or visitors may want to use it. Overall, the use of the Metro bus system is challenging as currently configured for Downtown circulation and connections to surrounding areas, especially for novice transit users.

While there is frequent Metro bus service to and from Downtown, the surrounding districts (particularly the west end of the corridor) lack frequent connection opportunities. A more developed transit priority corridor is key in providing an intuitive, user-friendly, and high quality transit service between Downtown and surrounding activity centers. Reconfiguring existing Metro bus routes and schedules could partially or fully resolve some connection and access issues. These issues will be examined along with the current Metro timed transfer system in the MAPA/Metro Regional Transit Vision study.

1.3.3 Increased Transit Demand from Population and Employment Growth

A study of the alternative modes is needed in order to determine a preferred mode that will provide increased transit service to support future population and employment growth within the study area. According to Census 2010, the highest percentage of population growth in the study area between 2000 and 2010 occurred in Downtown and the UNO Pacific and Center campuses and Aksarben Village areas. These areas are at opposite ends of the corridor and have different transit service characteristics. Downtown has the highest level of transit service in the region while transit services around the UNO Pacific and Center campuses and Aksarben Village areas are much more limited. This indicates a need to redistribute existing transit resources and reprioritize transit investments to serve existing and growing population centers.

Most of the region's largest employment centers are located within the study area (Downtown, Midtown, UNMC, UNO, and Crossroads and Aksarben Village areas). Each of these employment centers has mobility



UNO Master Plan
Source: *UNO*

Future Buffett Cancer Center at UNMC
Source: *UNMC*

Midtown Crossing

Aerial view of AA study Corridor looking west (Downtown in forefront; Midtown and UNMC in rear)

Aerial view of Aksarben Village Development

Creighton University of North Downtown

constraints, which may inhibit future growth. For example, UNMC is almost landlocked with limited to no availability for parking expansion. Improved transit connections and increased service are needed to support UNMC's growth for employees, patients and visitors of UNMC. Both UNMC and UNO operate shuttle systems for their employees and students, but more connections are needed for these users as well as other employers and universities (i.e., Mutual of Omaha and Creighton).

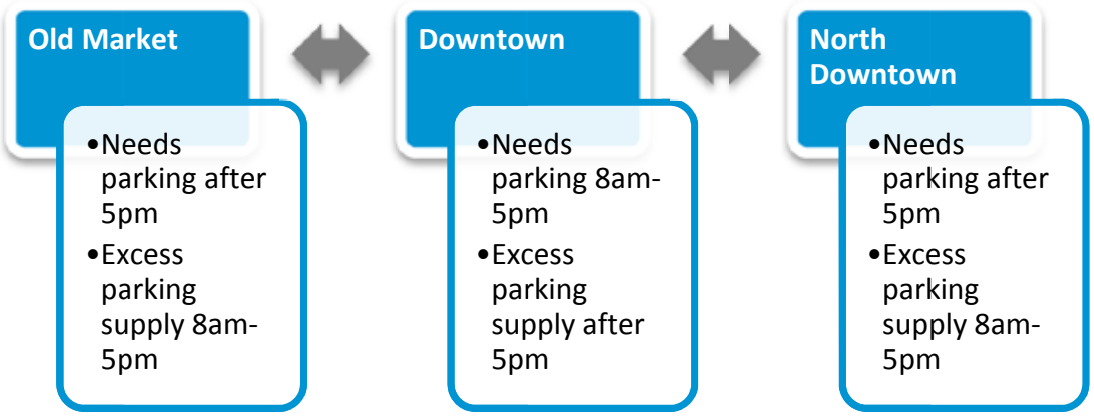
1.3.4 Imbalanced Parking Availability and Capacity

The Omaha *Downtown Parking Management Plan* concluded that the parking supply in downtown is plentiful but disproportionate. On-street parking is regularly in high demand and creates unnecessary automobile circulation traffic while drivers try to locate on-street parking spots that are better located and free at prime times of the day. While most of the garages are publicly owned and affordable for either monthly or hourly options, there is an imbalance of garages with plenty of availability versus on-street parking in high demand areas. As such, management of the City's parking assets is spread thin with disparate elements and policies that are not cohesive.

Improved transit circulation is needed to support better parking management by connecting parking supply and demand. For example, many of the parking lots and garages in Downtown are empty during special events in North Downtown at CenturyLink Center and TD Ameritrade Park. Conversely, many of the

On-street parking at Midtown Crossing

Surface and structured parking around TD Ameritrade Park and CenturyLink Center



parking lots around these event centers are empty during regular office hours in Downtown.

The success of Metro's Stadium Circulator during the College World Series demonstrates the ability to use the existing parking supply in Downtown for special events. The same approach could be used on a daily basis as part of a comprehensive parking management strategy supported by improved transit circulation.

1.3.5 Poor Trip Circulation for Special Events

Existing Metro bus service does not provide the everyday circulation needed for special events, particularly to and from North Downtown. As described earlier, there are a number of physical barriers separating Downtown and North Downtown, including Interstate 480, Gene Leahy Mall, and the Doubletree Hotel on 16th Street. These barriers, along with the distance between Downtown and the North Downtown event venues, provide obstacles for trip circulation for special events.

TD Ameritrade Park

Metro's Stadium Circulator demonstrates the travel demand between Downtown and North Downtown for special events. However, this service does not operate during other times of the year when there are many other special events at CenturyLink Center, TD Ameritrade Park, Holland Performing Arts Center, Orpheum, and other venues, in addition to the multitude of seasonal events such as the Farmers Market, Summer Arts Festival, and other niche events. Similarly, many of the hotels are located in Downtown and North Downtown, with many hotel patrons needing to go from a hotel in North Downtown to Downtown, or vice versa to special events.

1.3.6 Lack of Timely Transit Access to Jobs

The project is needed to address a lack of timely transit access to jobs. Based on the demographic information obtained from Census 2010 and MAPA, the census tracts with the highest population, low income households, and minority populations are different from those with the highest employment. While many of these areas are

"Where the Jobs Are: Employer Access to Labor by Transit (July 2012)" *by the Metropolitan Policy Program at Brookings*

According to this paper, "the suburbanization of jobs obstructs transit's ability to connect workers to opportunity and jobs to local labor pools." Based on the results of this study, 76.2 percent of jobs in the Omaha metropolitan area are in neighborhoods with transit service, which ranks 38th among the 100 largest metropolitan areas. In addition, the typical job can reach 28.5 percent of the Omaha metropolitan population in 90 minutes via public transit, which ranks 32nd among metropolitan areas surveyed. While in the top 50 percent in both categories, there remains a need to improve the labor access rate in Omaha. One of the key findings from the Brookings paper is that "expanded transit networks and integrated land use decisions can improve transit's utility to employers." These figures and finding support the need for the project to further address a lack of transit access to jobs in Omaha.

Metro began installing new Odyssey fareboxes in 2013
Source: *Metro*

connected by the existing Metro bus service, the level of service is not conducive to providing improved access to jobs. This is further needed since the employment centers in Omaha are in a linear corridor between Downtown, Midtown, UNMC, UNO, and the Crossroads and Aksarben Village areas. In addition, there is increased opportunity for development of office space and other employment in Downtown and throughout the corridor.

1.3.7 Lack of Adequate Stop and Service Amenities

There is a need for more stop and service amenities within the study area. Many of the older bus shelters and benches in the study area were built to standards different than today. Many stops do not have adequate amenities for patrons as they wait for buses (especially during inclement weather), and in some instances, are not easy to locate or get to because of topography. Service reliability, passenger comfort, and quicker boarding times are difficult to achieve as the system continues to age. Some stop amenities within the study area are slightly newer than the rest of the Metro service area, as new developments have implemented new amenities. Mutual of Omaha recently built bus shelters in the Midtown Crossing area and implemented an agreement to provide maintenance service for the shelters. In addition, Metro upgraded fareboxes in 2013. They now accommodate new fare media including smart card expansion in the future.

1.3.8 Sustainability Goals/Measures in Adopted Plans

The project is needed to address the 2030 sustainability goals outlined in the *Omaha Master Plan Environmental Element (2010)*. The Urban Form and Transportation category of this plan provides direction for Omaha to substantially reduce its impact on the environment and the per capita cost of critical infrastructure and municipal services to increase urban quality and community health. Increasing density and encouraging pedestrian activity and alternative modes of transportation (especially transit) are critical.

1.4 Statement of Purpose

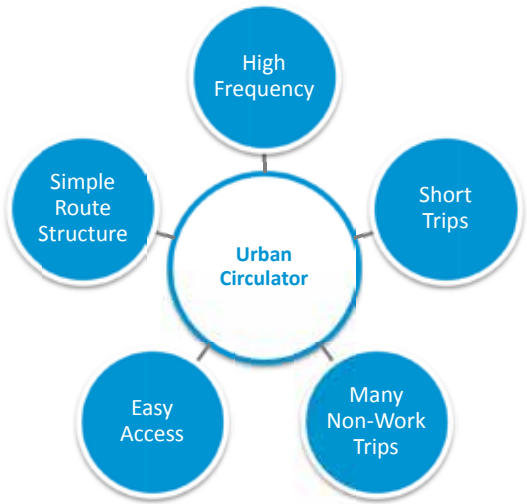
The purpose of the project is to improve transit connections for residents, employees, and visitors to employment centers, educational facilities, various services, areas of interest, and the regional transit network while serving as a driver for employment growth and economic development. The project will improve transit connectivity and increase opportunities for mobility between Downtown, Midtown, UNMC, UNO, and the Crossroads and Aksarben Village areas. The box on this page describes the purpose for the project.

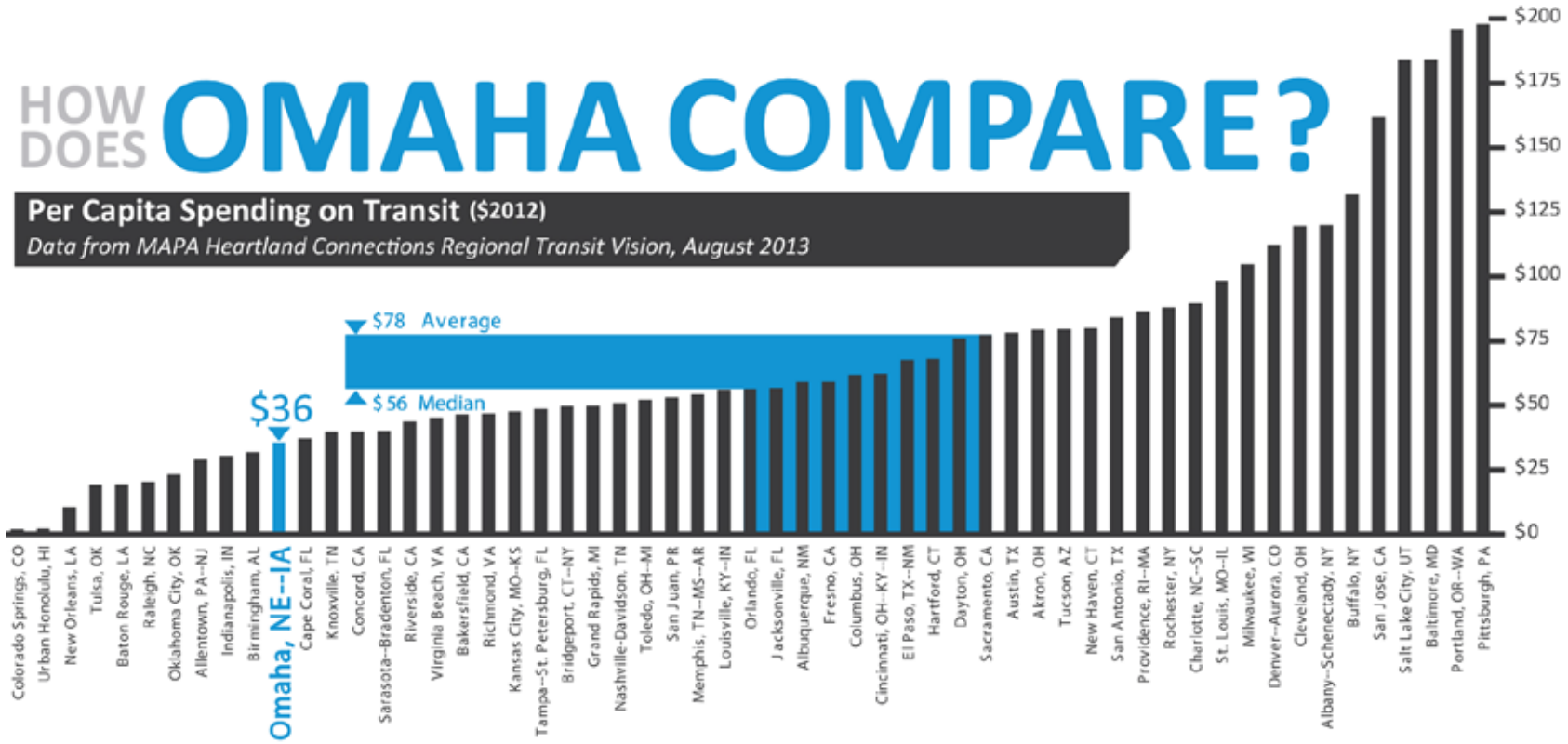
STATEMENT OF PURPOSE

- ***Connect major districts, destinations, and activity centers***
- ***Provide simple, localized, high-frequency transit service***
- ***Support population and employment growth, and revitalization***
- ***Balance parking availability and capacity***
- ***Improve transit circulation for special events***
- ***Maximize transit access to highest employment corridor***
- ***Provide adequate stop and service amenities***
- ***Contribute to meeting sustainability goals/measures in adopted plans***

1.4.1 Connect Major Districts, Destinations, and Activity Centers

The project will strengthen the connection between major districts, destinations, and activity centers within the study area, fostering a more unified and cohesive corridor through the Downtown, Midtown, UNMC, UNO, and the Crossroads and Aksarben Village areas. The project will enable easy, frequent, and convenient travel throughout the study area for residents, employees, and visitors. This includes providing connections that overcome existing physical barriers (size of the study area, topography and street grades, and interrupted street grid) as well as improving trip circulation for special events.




HOW DOES OMAHA COMPARE?
Per Capita Spending on Transit ($2012)
Data from MAPA Heartland Connections Regional Transit Vision, August 2013
$78 Average
$56 Median
$36
$200
$175
$150
$125
$100
$75
$50
$25
$0
Colorado Springs, CO
Urban Honolulu, HI
New Orleans, LA
Tulsa, OK
Baton Rouge, LA
Raleigh, NC
Oklahoma City, OK
Allentown, PA--NJ
Indianapolis, IN
Birmingham, AL
Omaha, NE--IA
Cape Coral, FL
Knoxville, TN
Concord, CA
Sarasota--Bradenton, FL
Riverside, CA
Virginia Beach, VA
Bakersfield, CA
Richmond, VA
Kansas City, MO--KS
Tampa--St. Petersburg, FL
Bridgeport, CT--NY
Grand Rapids, MI
Nashville-Davidson, TN
Toledo, OH--MI
San Juan, PR
Memphis, TN--MS--AR
Louisville, KY--IN
Orlando, FL
Jacksonville, FL
Albuquerque, NM
Fresno, CA
Columbus, OH
Cincinnati, OH--KY--IN
El Paso, TX--NM
Hartford, CT
Dayton, OH
Sacramento, CA
Austin, TX
Akron, OH
Tucson, AZ
New Haven, CT
San Antonio, TX
Providence, RI--MA
Rochester, NY
Charlotte, NC--SC
St. Louis, MO--IL
Milwaukee, WI
Denver--Aurora, CO
Cleveland, OH
Albany--Schenectady, NY
Buffalo, NY
San Jose, CA
Salt Lake City, UT
Baltimore, MD
Portland, OR--WA
Pittsburgh, PA

1.4.2 Provide Simple, Localized, High-Frequency Transit Service

This project will improve transit mobility and circulation within the study area by improving frequency, service coverage and quality, and providing stronger intermodal connections. In particular, the project will enhance transit mobility as well as accelerate longer walking and biking distances within the study area. The project will provide high quality transit service that will differ from existing Metro bus service in terms of its operating characteristics.

The project will provide an urban circulator transit service with the following characteristics:

- Simple route network that is user-friendly
- High-frequency all-day service that facilitates short trips
- Larger vehicle capacity to accommodate higher passenger load factors during peak hours and special events
- Low-floor vehicles to facilitate easy access and rapid boardings and alightings

1.4.3 Support Population and Employment Growth, and Revitalization

The project will support population growth in the study area, particularly in the areas with the largest population growth between 2000 and 2010 (Downtown, UNO Pacific and Center campuses, and Aksarben Village areas). The project will also support employment growth at some of the region's largest employment centers. Many of these employment centers, such as UNMC and UNO, are physically constrained. The project will support their growth by improving connectivity between their multiple campuses and supporting less of a need for on-street parking and parking lots.

The project will build stronger physical connections between employment hubs, educational centers, residential neighborhoods, shopping areas, civic resources, historic districts, cultural landmarks and entertainment destinations, and unify the Downtown, Midtown, UNMC, UNO, Crossroads, and Aksarben Village areas into a unified corridor rather than a series of fragmented nodes. The connectivity will revitalize and strengthen the area's economic competitiveness and help reactivate isolated neighborhoods.

1.4.4 Balance Parking Availability and Capacity

The project will help reduce the need to travel by car and promote a "park once" strategy to better utilize existing parking resources and discourage short automobile trips. Increased transit coverage and circulation within the study area will encourage people to take transit, further reducing the need for parking facilities and the intense demand for prime on-street parking spaces. By reducing the need for parking in the corridor, particularly in Downtown, the project will allow the City to maximize the density of development that can be supported in Downtown, North Downtown, and along the corridor, which will in turn support additional transit service and help the City meet its overall sustainability goals. Opportunities to effectively utilize the City's parking assets will be maximized through the project and provide consistency with the sustainability and quality of life goals identified in the *Downtown Omaha Master Plan*.

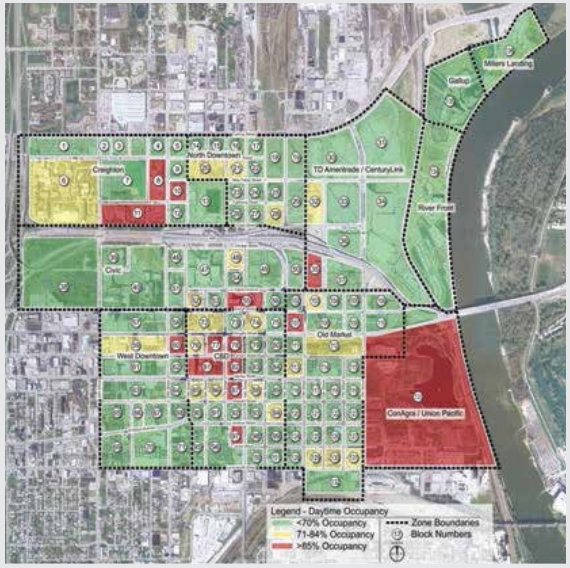
1.4.5 Improve Trip Circulation for Special Events

The project will improve everyday trip circulation for special events. The project will provide a transit investment that addresses the distance and physical barriers separating Downtown and North Downtown. The project will facilitate movement between employment centers, special event venues, and hotels in and around Downtown, and provide new connections to other activity centers in the study area, such as Midtown Crossing. This improved trip circulation will distribute the economic benefit of these special events throughout Downtown and build upon a "park once" strategy.

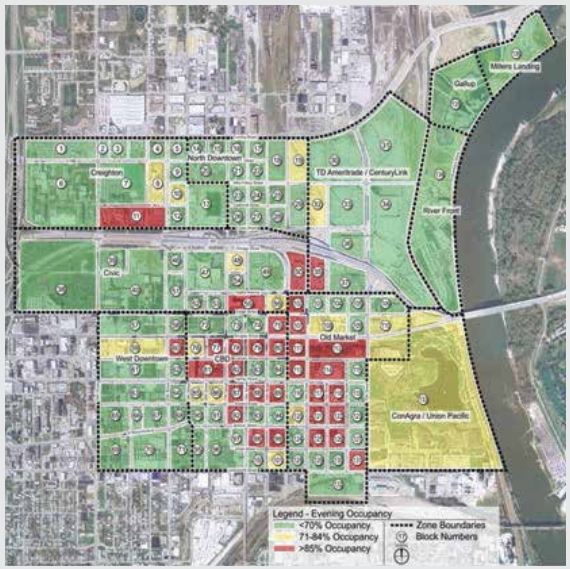
Outside the NCAA Men's College World Series at TD Ameritrade Park

1.4.6 Maximize Transit Access to Highest Employment Corridor

The project will create a transit priority corridor in the area with the region's largest employment centers in Omaha. This concentration of transit service and employment will improve transit access to jobs and facilitate intermodal connections. In many cases, the project will provide the benefit of serving locations that are both major employment and educational hubs, such as UNMC and UNO. In addition, the project will allow future employment to further concentrate in a corridor with high quality transit service.



Daytime Parking Occupancy Rates
Average Weekday Occupancy= 53%



Evening Parking Occupancy Rates
Average Evening Occupancy= 46%

HOW CAN WE MAXIMIZE DOWNTOWN?

Based on the 2011 Omaha Downtown Improvement District Parking Management Plan there are currently

40,979 Parking Spaces

in the Omaha Downtown Improvement District

Source: Olsson Associates, Walker Parking Consultants, May 2011

1.4.7 Provide Adequate Stop and Service Amenities

The project will support additional stop and service amenities such as benches, shelters and transportation modes to improve the Metro rider experience and help promote a unified system identity. The project will identify opportunities for benches and/or shelters at locations that are easy to locate and get to, while considering inclement weather, topography, and connections to the Metro system. By providing adequate service amenities, passengers will benefit from a comfortable ride, service reliability, quicker boarding times, and overall improvements to travel time.

1.4.8 Contribute to Meeting Sustainability Goals/Measures in Adopted Plans

The project will address the 2030 sustainability goals outlined in the *Omaha Master Plan Environmental Element (2010)*. The project will help to address specific measures for increasing density, improving the mode split for active transportation modes, reducing commute trips by single occupant vehicles, and decreasing per capita motor vehicle miles traveled. These measures cannot be achieved without the implementation of a major transit investment in the area of the highest population and employment density in Omaha.

Goals under the Urban Form and Transportation category from *Omaha Master Plan Environmental Element(2010)* provide:

- **Large-scale City Form:** Develop a city form that both reduces the per capita cost of providing city services and establishes the density necessary to support more energy-efficient forms of transportation.
- **Land Use and Development Policy**: Generate development at higher residential densities and true mixed uses that produce more diverse environments and reduce the number of necessary automobile trips.
- **Land Development:** Create individual developments with components that are connected, walkable, and accessible to all modes of transportation, by providing safe, defined, and pleasant routes from the public realm to destinations, based on the needs of each mode.
- **Transportation Network:** Develop a transportation network that moves people and freight within and through the metropolitan area efficiently, maximizing access and minimizing vehicle miles traveled, energy consumed, and pollutants emitted.
- **Transit:** Develop a public transportation system that offers a degree of coverage, convenience, and amenity, that both provides transportation equity for dependent customers and makes transit an attractive option for discretionary passengers.
- **Active Transportation:** Provide a high level of citywide access and continuity to pedestrians and bicyclists, making active transportation a realistic and integral part of the city's transportation network.

1.5 Alternatives Analysis Goals

These five comprehensive goals will guide the Central Omaha Transit AA based on the study's Purpose and Need. These goals will provide the basis by which the transit alternatives will be defined, and will establish the methodology used to evaluate the transit alternatives within the study area.

- **Improve mobility between Downtown, Midtown, UNMC, UNO, and the Crossroads and Aksarben Village areas**
- **Maximize the efficiency and effectiveness of the transit investment**
- **Increase support for Omaha's Master Plan land use and economic development goals and enhance the use of transit-supported land use, planning, and design strategies**
- **Increase sustainable transit investments that are compatible with the built environment**
- **Provide a transit investment that can be implemented within budget constraints for capital and operating expenses**

2 EVALUATION METHODOLOGY

This section describes the Evaluation Methodology for the Central Omaha Transit AA Study.

2.1 Evaluation Process

The AA Study includes an evaluation of the transit alternatives under consideration. The evaluation process will develop project information in sufficient detail so that citizens, stakeholders, agencies, elected officials, and other study participants can make informed decisions on the transit alternatives. The evaluation process includes two phases: Initial Screening and Final Screening. Figure 21 shows how the evaluation process fits into the overall AA Study process.

2.2 Initial Screening

The initial screening evaluation analyzes the initial list of alternatives being considered using a set of qualitative evaluation criteria. Its purpose is to eliminate alternatives that have fatal flaws, do not meet project goals, or do not have public support. The alternatives are rated High, Medium, or Low for each criterion, with High meaning optimal performance and Low indicating sub-standard performance. Table 6 describes the evaluation criteria to be used in initial screening.

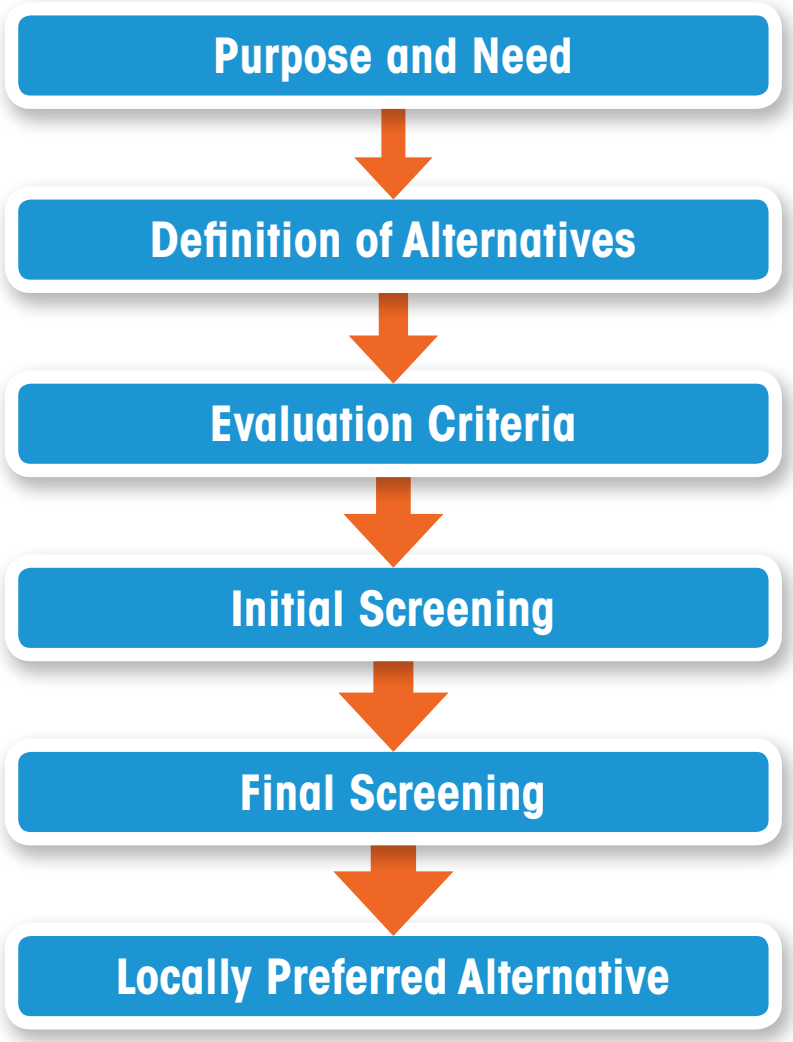


Table 6 Initial Screening Evaluation Criteria

Category	Evaluation Criteria
Mobility	What is the relative potential of the alternative to improve mobility?
Ridership potential	What is the relative potential of the alternative to attract riders?
Capital costs	What is the relative capital cost of the alternative?
O&M costs	What is the relative operating and maintenance (O&M) cost of the alternative?
Points of origin	How well does the alternative serve existing populations?
Destinations	How well does the alternative serve major destinations?
Fatal flaw	Does the alternative have a potential fatal flaw that prevents implementation?
Transit system integration	How well does the alternative integrate with existing Metro bus service?
Expandability	Does the alternative have the ability to be physically expanded?
Traffic	Does the alternative use a route that experiences substantial traffic delay?
Transportation plans and policy	How well does the alternative compliment transportation plans and policies?
Land use and density	How well does the alternative compliment land use/density plans and policies?
Urban design	How well does the alternative compliment urban design plans and policies?
Economic development	How well does the alternative serve areas with potential economic development opportunities?
Community support	How much community support is there for the alternative?
Passenger benefits	What are the relative passenger benefits of the alternative (e.g., travel time reliability, comfort, rapid boarding, fare payment)?
Safety	What is the relative safety of the alternative from an operations and passenger perspective?
Access	How accessible is the alternative by other travel modes (e.g. pedestrian, bicycle)?
System identification	How easy is it for new riders to navigate and understand the alternative?
Funding sources	What is the relative local funding potential for each alternative?
Social equity	Does the alternative have social equity concerns?

2.3 Final Screening

The alternatives advancing from initial screening are evaluated in more detail in final screening. The final screening evaluation criteria are more quantitative than the initial screening evaluation criteria and are grouped into the following categories:

- Ridership
- Capital Costs
- Operation and Maintenance Costs
- Cost Benefit
- Mobility
- Origins/Destinations
- Service Characteristics
- Physical Constraints
- Environmental Issues
- Land Use and Urban Design
- Safety
- Economic Development
- Funding Sources

Table 7 describes the evaluation criteria to be used in final screening.

Table 7 Final Screening Evaluation Criteria

Category	Evaluation Criteria
RIDERSHIP	
Ridership	What is the estimated ridership for each alternative?
CAPITAL COSTS	
Capital costs	What is the capital cost of each alternative?
Cost per mile	What is the capital cost per mile of each alternative?
OPERATION AND MAINTENANCE COSTS	
O&M costs	What is the operating and maintenance (O&M) cost of each alternative?
COST BENEFIT	
Cost per user	What is the cost per user for each alternative?
MOBILITY	
Mobility	What is the relative potential of the alternative to improve mobility?
ORIGINS/DESTINATIONS	
Origins	What existing population/land use is served by the alternative?
Destinations	What destinations are served by the alternative?
Connectivity	Are priority origins and destinations connected through linear/direct routing (without transfers, deviations, etc.)?
SERVICE CHARACTERISTICS	
Transit integration	Does the alternative integrate with existing and planned Metro bus operations?
Transit vehicle delay	What are the potential transit vehicle delay issues for each alternative?
Vehicle requirement (peak/total)	How many transit vehicles are required to operate the service?
Transit vehicle lifespan	What is the lifespan of the transit vehicle?
Passenger capacity	What is the passenger capacity of the transit vehicle?
Bicycle capacity	What is the bicycle capacity of the transit vehicle?
Passenger benefits	What are the relative passenger benefits of the alternative (e.g., travel time reliability, comfort, rapid boarding, fare payment)?

(Table continues on next page)

Table 7 (cont)

Category	Evaluation Criteria
Access	How accessible is the alternative by other travel modes?
System identification	Is the alternative easy for new riders to navigate and understand?
Expansion opportunities	What are the expansion opportunities for each alternative?
PHYSICAL CONSTRAINTS	
Transit operations	Are there transit operations issues associated with each alternative?
Right-of-way	Are there right-of-way or regulatory issues associated with each alternative?
Street grade	Does the alternative operate on streets with steep grades?
Bridge structures	Does the alternative operate on any bridge structures?
ENVIRONMENTAL ISSUES	
Air quality	Does the alternative have air quality issues?
Consistency with local/state plans	Is the alternative consistent with local and state plans?
Land use	Is the alternative consistent with existing and future land use?
Land acquisitions and relocations	Does the alternative require property acquisition or relocation and what are the implications?
Environmental justice	Does the alternative affect low income and minority populations?
Noise and vibration	Does the alternative affect sensitive noise receptors?
Hazardous materials	Does the alternative have hazardous material issues?
Wetlands/waters of the U.S.	Does the alternative affect wetlands or waters of the U.S.?
Clean Water Act/Section 402	Does the alternative create stormwater and/or sediment runoff?
Floodplains/flooding	Is the alternative within a 100 year floodplain?
Navigable waterway	Does the alternative affect navigable waterways?
Wild and scenic rivers	Does the alternative affect wild and scenic rivers?
Biological resources	Does the alternative affect biological resources?
Traffic and parking	Does the alternative increase traffic volumes or reduce parking?
Energy	Does the alternative affect overall energy consumption?
Cultural resources	Does the alternative affect cultural resources?
Section 4(f) resources	Does the alternative affect parklands?

(Table continues on next page)

Table 7 (cont)

Category	Evaluation Criteria
Construction issues	Does the alternative have construction issues?
Secondary development	Does the alternative create secondary development?
Prime or unique farmlands	Does the alternative affect prime or unique farmland?
Utilities	Does the alternative affect utilities?
LAND USE AND URBAN DESIGN	
Land use and density	Does the alternative compliment land use/density plans and policies?
Urban design	Does the alternative compliment urban design plans and policies?
SAFETY	
Safety	How safe is the alternative from an operations and passenger perspective?
ECONOMIC DEVELOPMENT	
Economic development	What is the economic development potential for each alternative?
FUNDING SOURCES	
Funding sources	What is the local funding potential for each alternative?

3 INITIAL SCREENING

This section describes the initial screening of alternatives for the Central Omaha Transit AA Study.

3.1 Initial Screening Alternatives

The alternatives evaluated during initial screening include a combination of transit technologies and alignments. The technologies considered included Enhanced Bus, Bus Rapid Transit, and Modern Streetcar. Multiple alignments were considered for each technology. In order to better evaluate the range of alternatives, the study area was divided into five segments. Dividing the corridor into segments reduced the number of potential combinations that needed to be evaluated and allowed the differences between the alternatives to be clearly identified.

The five segments are:

- Segment A (Downtown)
- Segment B (Midtown – UNMC)
- Segment C (UNMC – Crossroads)
- Segment D (Crossroads – Aksarben)
- Segment E (UNMC – Aksarben)

Table 8 provides further detail on each of the transit technologies. Figure 22 illustrates the initial screening alternatives while Table 9 describes the initial screening alternatives by segment.

Table 8 Transit Technologies

Enhanced Bus	Bus Rapid Transit	Modern Streetcar
		
· Improvements to existing Metro bus service · Operates in mixed traffic · Low floor 40-foot buses · Bikes on front of bus (3 max) · Improved frequency and span of service · Minor capital improvements · 40-60 passengers per bus	· Advanced bus service · Operates in mixed traffic and/or dedicated lanes · Low floor 40 to 60-foot buses · Bikes on front of bus (3 max) · Preferential treatments (queue jumps, traffic signal priority) · Specially branded service · 40-90 passengers per bus	· Electric rail service on tracks · Operates in mixed traffic and/or dedicated lanes · Low floor 65-foot streetcars · Bicycles on board (4-6 max) · Preferential treatments (queue jumps, traffic signal priority) · 130-160 passengers per streetcar

Figure 22 Initial Screening Alternatives

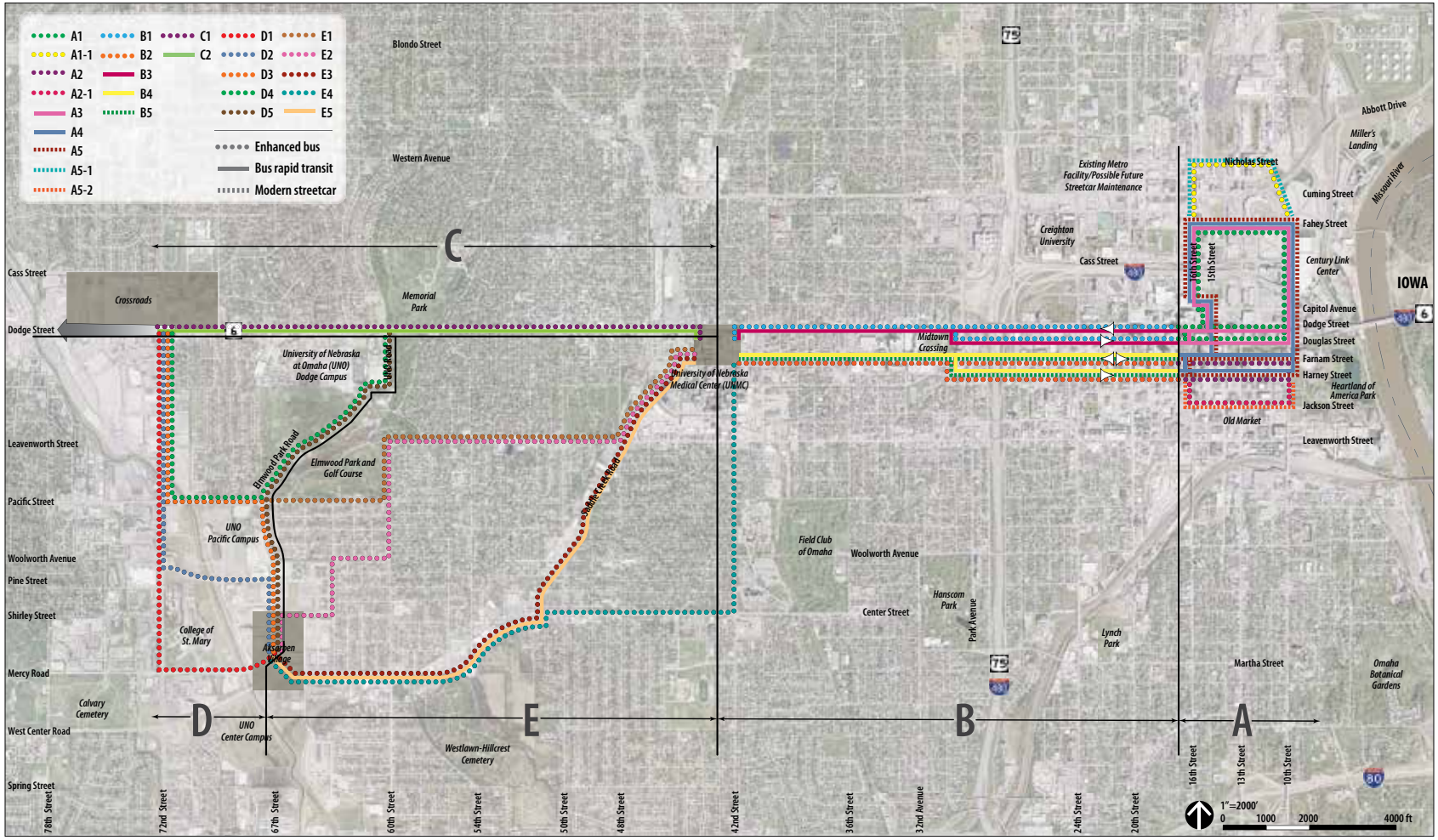


Table 9 Initial Screening Alternatives

Alt	Technology	Descriptions	Issues
SEGMENT A			
A1	Enhanced Bus	· One way or two way loop using Dodge/Douglas St, 10th St, Fahey St, 16th St, Capitol Ave, and 15th St	· Assumes two-way conversion of 15th St · At-grade crossing of Union Pacific spur line on Fahey St · Closure of Fahey St during CWS
A1-1	Enhanced Bus	· Extension of A1 to Nicholas St, using new 10th St connection between Cuming St and Nicholas St and 16th St	· Requires new 10th St connection between Cuming St and Nicholas St · At-grade crossing of Union Pacific spur line on Nicholas St
A2	Enhanced Bus	· East on Harney St, north on 10th St, and west on Farnam St	· Requires a transfer to reach North Downtown
A2-1	Enhanced Bus	· Extension of A2 to Jackson St, using 16th St and 10th St	· Requires a transfer to reach North Downtown
A3	Bus Rapid Transit	· One way or two way loop using Dodge/Douglas St, 10th St, Fahey St, 16th St, Capitol Ave, and 15th St	· Assumes two-way conversion of 15th St · At-grade crossing of Union Pacific spur line on Fahey St · Closure of Fahey St during CWS
A4	Bus Rapid Transit	· One way or two way loop using Farnam/Harney St, 10th St, Fahey St, 16th St, Capitol Ave, and 15th St	· Assumes two-way conversion of 15th St · At-grade crossing of Union Pacific spur line on Fahey St · Closure of Fahey St during CWS
A5	Modern Streetcar	· One way or two way loop using Farnam/Harney St, 10th St, Fahey St, 16th St, Capitol Ave, and 15th St	· Assumes two-way conversion of 15th St · At-grade crossing of Union Pacific spur line on Fahey St · Closure of Fahey St during CWS
A5-1	Modern Streetcar	· Extension of A5 to Nicholas St, using new 10th St connection between Cuming St and Nicholas St and 16th St	· Requires new 10th St connection between Cuming St and Nicholas St · At-grade crossing of Union Pacific spur line on Nicholas St
A5-2	Modern Streetcar	· Extension of A5 to Jackson St, using 16th St and 10th St	· Requires a transfer to reach North Downtown
SEGMENT B			
B1	Enhanced Bus	· East on Dodge St, south on Turner Blvd, east on Douglas St; west on Dodge St	· S curve study alternatives
B2	Enhanced Bus	· East on Farnam St, south on Turner Blvd, east on Harney St; west on Farnam St · Or East/West on Farnam St	· Assumes two-way conversion of Farnam St between 42nd St and 36th St · East/west Farnam St requires eastbound contraflow transit lane
B3	Bus Rapid Transit	· East on Dodge St, south on Turner Blvd, east on Douglas St; west on Dodge St	· S curve study alternatives

(Table continues on next page)

Table 9 (cont)

Alt	Technology	Descriptions	Issues
B4	Bus Rapid Transit	· East on Farnam St, south on 31st St, east on Harney St; west on Farnam St · Or East/West on Farnam St	· Assumes two-way conversion of Farnam St between 42nd St and 36th St · East/west option on Farnam St requires eastbound contraflow transit lane
B5	Modern Streetcar	· East on Farnam St, south on 31st St, east on Harney St; west on Farnam St · Or East/West on Farnam St	· Assumes two-way conversion of Farnam St between 42nd St and 36th St · East/west option on Farnam St requires eastbound contraflow transit lane
SEGMENT C			
C1	Enhanced Bus	· East/west on Dodge St	· Operating environment on Dodge St
C2	Bus Rapid Transit	· East/west on Dodge St	· Operating environment on Dodge St
SEGMENT D			
D1	Enhanced Bus	· North/south on 72nd St and east/west on Mercy Rd	· Operating environment on 72nd St
D2	Enhanced Bus	· North/south on 72nd St, east/west on Pine St, north/south on 67th St	· Operating environment on 72nd St
D3	Enhanced Bus	· North/south on 72nd St, east/west on Pacific St, north/south on 67th St	· Operating environment on 72nd St
D4	Enhanced Bus	· North/south on 72nd St, east/west on Pacific St, north/south on Elmwood Park Rd and University Dr East	· Operating environment on 72nd St · Alignment through Elmwood Park and UNO Dodge campus
D5	Enhanced Bus	· North/south on University Dr East, Elmwood Park Rd, and 67th St	· Alignment through Elmwood Park and UNO Dodge campus
SEGMENT E			
E1	Enhanced Bus	· East/west on Pacific St, north/south on 60th St, east/west on Leavenworth St, and north/south on Saddle Creek Rd	· Does not serve Dodge St west of UNMC
E2	Enhanced Bus	· North/south on 67th St, east/west on Shirley St, north/south on 63rd St, east/west on Woolworth Ave, north/south on 60th St, east/west on Leavenworth St, and north/south on Saddle Creek Rd	· Does not serve Dodge St west of UNMC
E3	Enhanced Bus	· East/west on Center St and north/south on Saddle Creek Rd	· Does not serve Dodge St west of UNMC
E4	Enhanced Bus	· East/west on Center St and north/south on 42nd St	· Does not serve Dodge St west of UNMC
E5	Bus Rapid Transit	· East/west on Center St and north/south on Saddle Creek Rd	· Does not serve Dodge St west of UNMC

3.2 Initial Screening Evaluation

The initial screening evaluation analyzes the initial list of alternatives being considered using a set of qualitative evaluation criteria. Its purpose is to eliminate alternatives that have fatal flaws, do not meet project goals, or do not have public support.

The alternatives are rated High (3), Medium (2), or Low (1) for each criterion, with High meaning optimal performance and Low indicating sub-standard performance. All of the criteria are weighted equally for the initial screening. Overall, the higher the score equals the higher the performance of the alternative.

Table 10 shows the results of the initial screening.

EMX Bus Rapid Transit, Eugene, OR

King County Metro Enhanced Bus, Seattle, WA

Tacoma Link Streetcar, Tacoma, WA

Table 10 Initial Screening of Alternatives

Category	Segment A									Segment B				
	A1	A1-1	A2	A2-1	A3	A4	A5	A5-1	A5-2	B1	B2	B3	B4	B5
	EB	EB	EB	EB	BRT	BRT	MS	MS	MS	EB	EB	BRT	BRT	MS
Mobility	2	2	2	2	3	3	3	3	3	2	2	3	3	3
Ridership potential	1	1	1	1	3	3	3	1	2	1	1	3	3	3
Capital costs	3	2	3	2	2	2	1	1	1	3	3	2	2	1
O&M costs	3	2	3	2	2	2	2	1	2	3	3	2	2	2
Points of origin	3	3	3	2	3	3	3	3	2	3	3	3	3	3
Destinations	3	1	3	3	3	3	3	1	3	3	3	3	3	3
Fatal flaw	2	2	3	3	2	2	2	2	3	3	3	2	3	2
Transit system integration	3	2	3	3	3	3	3	2	3	3	3	3	3	3
Expandability	3	1	3	2	3	3	3	1	2	3	3	3	3	3
Traffic	3	3	3	3	3	3	3	3	3	1	3	1	3	3
Transportation plans and policy	3	2	3	3	3	3	3	2	3	3	3	3	3	3
Land use and density	2	2	2	2	3	3	3	3	3	2	2	3	3	3
Urban design	2	2	2	2	3	3	3	3	3	2	2	3	3	3
Economic development	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Community support	1	1	1	1	3	3	3	1	1	1	1	3	3	3
Passenger benefits	1	1	1	1	3	3	3	3	3	1	1	3	3	3
Safety	3	3	3	3	3	3	3	3	3	2	3	2	3	3
Access	2	2	2	2	3	3	3	3	3	2	2	3	3	3
System identification	1	1	1	1	3	3	3	3	3	1	1	3	3	3
Funding sources	1	1	1	1	2	2	3	2	2	1	1	2	2	3
Social equity	3	2	3	2	3	3	3	2	2	3	3	3	3	3
TOTAL	**48**	**39**	**49**	**44**	**59**	**59**	**59**	**46**	**53**	**46**	**49**	**56**	**60**	**59**
RANK	**6**	**9**	**5**	**8**	**1**	**1**	**1**	**7**	**4**	**5**	**4**	**3**	**1**	**2**

Rating: High (3) = Optimal Performance, Medium (2) = Moderate Performance, Low (1) = Substandard Performance
Technology: EB = Enhanced Bus, BRT = Bus Rapid Transit, MS = Modern Streetcar

(Table continues on next page)

Table 10 (cont)

Category	Segment C		Segment D					Segment E				
	C1	C2	D1	D2	D3	D4	D5	E1	E2	E3	E4	E5
	EB	BRT	EB	EB	EB	EB	EB	EB	EB	EB	EB	BRT
Mobility	2	3	2	2	2	2	2	2	2	2	2	3
Ridership potential	1	3	1	1	1	1	2	1	1	1	1	2
Capital costs	3	2	3	3	3	3	3	3	3	3	3	2
O&M costs	3	2	3	3	3	3	3	3	3	3	3	2
Points of origin	3	3	2	2	2	3	3	2	3	3	3	2
Destinations	3	3	3	3	3	3	3	2	2	3	3	3
Fatal flaw	3	2	3	3	3	2	2	3	3	3	3	3
Transit system integration	3	3	3	3	3	3	3	2	2	3	3	3
Expandability	3	3	2	2	2	1	2	2	2	3	3	3
Traffic	1	1	1	1	2	1	3	3	3	2	2	2
Transportation plans and policy	3	3	2	3	3	3	3	3	3	3	3	3
Land use and density	2	3	2	2	2	2	2	2	2	2	2	3
Urban design	2	3	2	2	2	2	2	2	2	2	2	3
Economic development	3	3	3	3	3	3	3	2	2	2	2	3
Community support	1	3	1	1	2	1	2	1	1	1	1	2
Passenger benefits	1	3	1	1	1	1	1	1	1	1	1	3
Safety	2	2	3	3	3	3	3	3	3	3	3	3
Access	2	3	2	2	2	2	2	2	2	2	2	3
System identification	1	3	1	1	1	1	1	1	1	1	1	3
Funding sources	1	3	1	1	1	1	1	1	1	1	1	2
Social equity	3	3	3	3	3	3	3	2	2	3	3	3
TOTAL	**46**	**57**	**44**	**45**	**47**	**44**	**49**	**43**	**44**	**47**	**47**	**56**
RANK	**2**	**1**	**4**	**3**	**2**	**4**	**1**	**5**	**4**	**2**	**2**	**1**

Rating: High (3) = Optimal Performance, Medium (2) = Moderate Performance, Low (1) = Substandard Performance
Technology: EB = Enhanced Bus, BRT = Bus Rapid Transit, MS = Modern Streetcar

3.3 Initial Screening Results

Based on the results of the initial screening evaluation, it is recommended that Alternatives A3, A4, A5, B3, B4, B5, and C2 be advanced into final screening. These alternatives are being advanced because of the following reasons:

- Simplified transit routing
- Most operational flexibility
- Balance local and regional transit needs
- Best connection through Downtown core
- Best connection to North Downtown and special events
- Integrates well with Metro bus network

In addition, the following is noted:

- All Enhanced Bus alternatives are being eliminated because they do not meet the project Purpose and Need
- All alternatives in Segments D and E are being eliminated, but could be considered in future phases

Table 11 summarizes the results of the initial screening. Figure 23 illustrates the alternatives that are being advanced into final screening.

MAX Bus Rapid Transit, Kansas City, MO

Portland Streetcar, Portland, OR

South Lake Union Streetcar, Seattle, WA

Table 11 Initial Screening Results

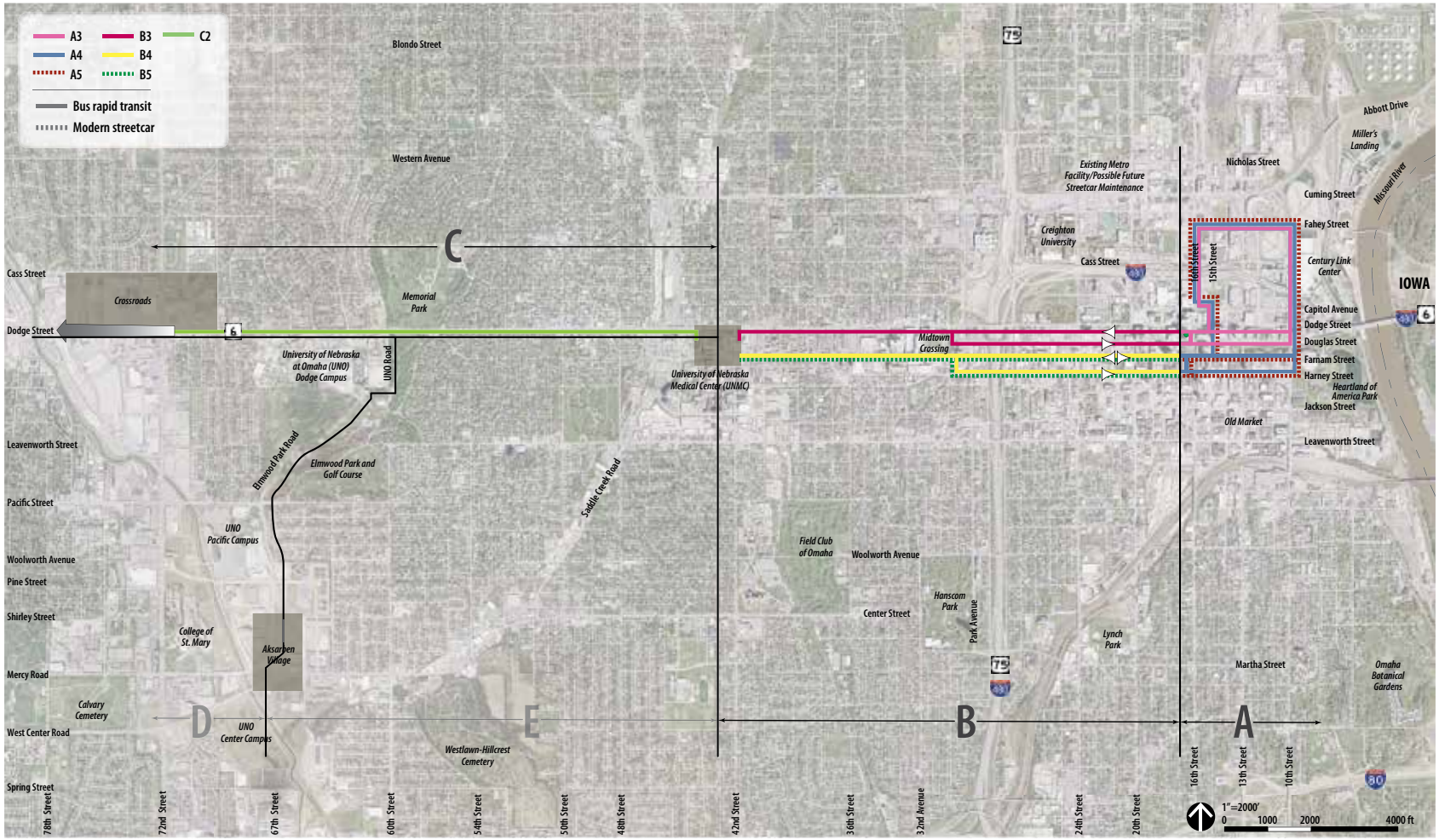
Alt	Technology	Recommendation	Description
SEGMENT A			
A1	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need
A1-1	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need · Requires new 10th St connection between Cuming St and Nicholas St
A2	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need · Does not serve North Downtown
A2-1	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need · Does not serve North Downtown
A3	Bus Rapid Transit	Advance	· Simplified transit routing and most operational flexibility · Best connection to North Downtown and special events
A4	Bus Rapid Transit	Advance	· Simplified transit routing and most operational flexibility · Best connection to North Downtown and special events
A5	Modern Streetcar	Advance	· Simplified transit routing and most operational flexibility · Best connection to North Downtown and special events
A5-1	Modern Streetcar	Eliminate	· Requires new 10th St connection between Cuming St and Nicholas St
A5-2	Modern Streetcar	Eliminate	· Does not serve North Downtown
SEGMENT B			
B1	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need
B2	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need
B3	Bus Rapid Transit	Advance	· Simplified transit routing and most operational flexibility · Best connection through Downtown core
B4	Bus Rapid Transit	Advance	· Simplified transit routing and most operational flexibility · Best connection through Downtown core
B5	Modern Streetcar	Advance	· Simplified transit routing and most operational flexibility · Best connection through Downtown core

(Table continues on next page)

Table 11 (cont)

Alt	Technology	Recommendation	Description
SEGMENT C			
C1	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need
C2	Bus Rapid Transit	Advance	· Simplified transit routing and most operational flexibility · Integrates well with Metro bus network
SEGMENT D			
D1	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need
D2	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need
D3	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need
D4	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need
D5	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need
SEGMENT E			
E1	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need · Does not serve Dodge St west of UNMC
E2	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need · Does not serve Dodge St west of UNMC
E3	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need · Does not serve Dodge St west of UNMC
E4	Enhanced Bus	Eliminate	· Enhanced Bus does not meet Purpose and Need · Does not serve Dodge St west of UNMC
E5	Bus Rapid Transit	Eliminate	· Does not serve Dodge St west of UNMC

Figure 23 Initial Screening Results



4 FINAL SCREENING

This section describes the final screening of alternatives for the Central Omaha Transit AA Study.

4.1 Final Screening Alternatives

The alternatives evaluated during final screening include the alternatives that advanced from initial screening. These include Alternatives A3, A4, A5, B3, B4, B5, and C2.

In order to simplify the final screening evaluation, the remaining alternative segments will be combined into three alternatives:

- **Alternative 1 (Red)**
  - Bus Rapid Transit
  - Combines Segments A3, B3, C2
- **Alternative 2 and 2A (Blue)**
  - Bus Rapid Transit
  - Combines Segments A4, B4, C2
- **Alternative 3 and 3A (Green)**
  - Modern Streetcar
  - Combines Segments A5, B5

In addition, the following changes were made to the alternatives between initial screening and final screening based on input from the Project Management Team, Stakeholder Committee, and public (via public meeting and online participation).

- **Alternative 2 (Bus Rapid Transit)** and **Alternative 3 (Modern Streetcar)** includes two design options in the Farnam Street/Harney Street corridor between 10th Street and 31st Street.
  - Couplet using Farnam Street/Harney Street couplet (**Alternative 2** and **Alternative 3**)
  - Contraflow using Farnam Street (**Alternative 2A** and **Alternative 3A**)
- The loop in North Downtown was eliminated for all alternatives because it requires the two-way conversion of 15th Street. The remaining alternatives will begin/terminate at 16th Street and Fahey Street in North Downtown.
- The alignment for **Alternative 2** was refined to use 44th Street between Farnam Street and Dodge Street near UNMC.

Figure 24 illustrates the final screening alternatives while Table 12 describes the final screening alternatives.

4.1.1 Farnam/Harney Street Corridor Design Options

Alternative 2 (Bus Rapid Transit) and **Alternative 3 (Modern Streetcar)** include two design options in the Farnam Street/ Harney Street corridor between 10th Street and 31st Street. The first option (**Alternative 2** and **Alternative 3**) operates transit using the Farnam/Harney Street one-way couplet. The second option (**Alternative 2A** and **Alternative 3A**) operates two-way transit on Farnam Street using an eastbound contraflow lane.

A contraflow lane is a transit only lane that allows transit operation in the reverse direction on a one-way street. In the case of Farnam Street, the eastbound contraflow lane would be located on the south side of the roadway adjacent to the curb. On-street parking (both parallel and angle parking) would be maintained wherever possible.

Conceptual rendering of Farnam couplet design option

Conceptual rendering of Farnam contraflow design option

Figure 24 Final Screening Alternatives

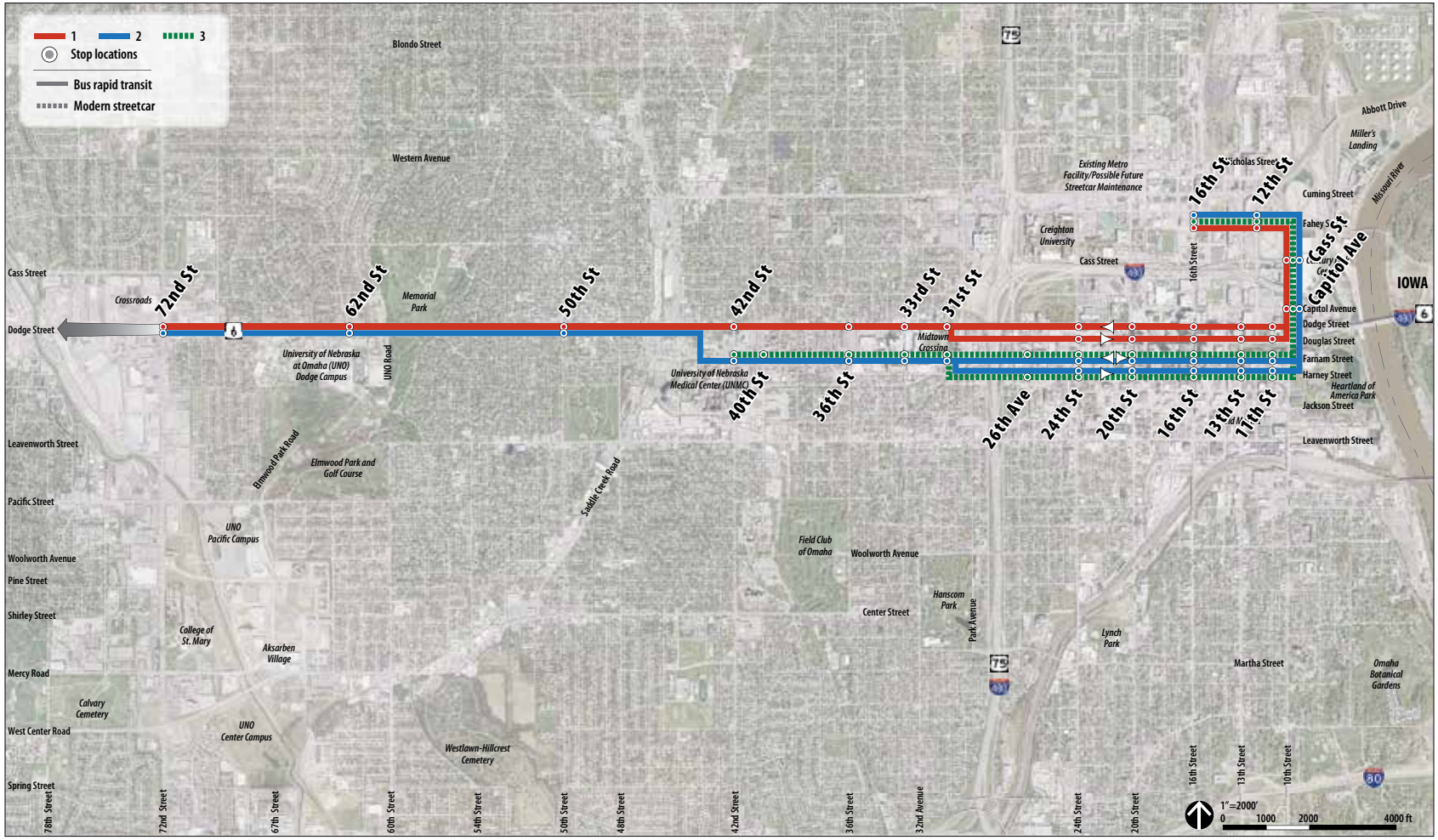


Table 12 Final Screening Alternatives

Feature	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
East Terminus	Couplet	North Downtown (16th St/Fahey)		North Downtown (16th St/Fahey)	
West Terminus	Crossroads (72nd St/Dodge)	Crossroads (72nd St/Dodge)		UNMC (42nd St/Farnam)	
Description	· Fahey between 16th and 10th St · 10th St between Fahey and Douglas · Dodge/Douglas between 10th and 31st St · Dodge between 31st and 72nd St	· Fahey between 16th and 10th St · 10th St between Fahey and Harney · Farnam/Harney between 10th and 31st St · Farnam between 31st and 44th St · 44th St between Dodge and Farnam · Dodge between 31st and 72nd St	· Fahey between 16th and 10th St · 10th St between Fahey and Harney · Farnam between 10th and 44th St · 44th St between Dodge and Farnam · Dodge between 31st and 72nd St	· Fahey between 16th and 10th St · 10th St between Fahey and Harney · Farnam/Harney between 10th and 31st St · Farnam between 31st and 42th St	· Fahey between 16th and 10th St · 10th St between Fahey and Harney · Farnam between 10th and 42nd St
Issues	· At-grade crossing of Union Pacific spur line on Fahey · Closure of Fahey during CWS · Future S curve alignment	· At-grade crossing of Union Pacific spur line on Fahey · Closure of Fahey during CWS · Assumes two-way conversion of Farnam between 36th and 42nd St		· At-grade crossing of Union Pacific spur line on Fahey · Closure of Fahey during CWS · Assumes two-way conversion of Farnam between 36th and 42nd St	

4.2 Final Screening Evaluation

The final screening evaluation analyzes the final list of alternatives being evaluated using a set of quantitative evaluation criteria. The final screening criteria are grouped into the following categories:

- Ridership
- Capital Costs
- Operation and Maintenance Costs
- Cost per User
- Mobility
- Origins/Destinations
- Service Characteristics
- Physical Constraints
- Environmental Issues
- Land Use and Urban Design
- Safety
- Economic Development
- Funding Sources
- Community Support

The final screening alternatives are evaluated based on same operating plan in terms of frequency and hours of service. Table 13 shows the operating plan for the final screening alternatives. Table 14 shows the results of the final screening.

Bus Rapid Transit Conceptual Rendering

Modern Streetcar Conceptual Rendering

Table 13 Operating Plan

Feature	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
East terminus	North Downtown	North Downtown		North Downtown	
West terminus	Crossroads	Crossroads		UNMC	
Frequency (peak/ off-peak/evening)	10/15/20 minutes	10/15/20 minutes		10/15/20 minutes	
Daily operating hours (M-F/Sat/Sun)	19/18/12 hours	19/18/12 hours		19/18/12 hours	
Distance	5.87 miles	6.15 miles		3.34 miles	
Vehicle travel time	23:55	24:52		17:34	
Annual revenue vehicle-hours	$40,380	$40,380		$31,740	
Annual revenue vehicle-miles	$365,700	$383,300		$208,100	
Vehicle requirement (peak/total)	6/8 buses	6/8 buses		4/5 streetcars	

Table 14 Final Screening of Alternatives

Criteria	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
RIDERSHIP					
Ridership[1]	1,180 passengers	1,430 passengers		1,380 passengers	
CAPITAL COSTS					
Capital cost ($2013)	$36,638,000	$37,196,000	$42,543,000	$141,386,000	$141,724,000
Annualized capital cost	$2,007,000	$2,037,000	$2,330,000	$7,745,000	$7,763,000
Cost per mile	$6,242,000	$6,048,000	$7,102,000	$42,331,000	$44,567,000
OPERATION AND MAINTENANCE COST (O&M)					
Annual O&M cost ($2013)	$2,647,486	$2,681,234		$6,883,515	
COST BENEFIT					
Cost per user[2] = (Annualized Capital Cost + Annualized O&M Cost) / Daily Ridership	$3.94	$3.30	$3.50	$10.60	$10.61

[1] *Ridership estimates were calculated using the Small Area Model.*
[2] *Cost per user was calculated using the Small Area Model ridership estimate.*

(Table continues on next page)

Table 14 (cont)

Criteria	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
MOBILITY					
Mobility	Urban circulator and regional connectivity	Urban circulator and regional connectivity		Urban circulator only	
ORIGINS/DESTINATIONS					
Origins Destinations Connectivity	North Downtown (Yes), Downtown (Yes), Midtown (Yes), UNMC (Yes), UNO (Yes), Crossroads (Yes)	North Downtown (Yes), Downtown (Yes), Midtown (Yes), UNMC (Yes), UNO (Yes), Crossroads (Yes)		North Downtown (Yes), Downtown (Yes), Midtown (Yes), UNMC (Yes), UNO (No), Crossroads (No)	
SERVICE CHARACTERISTICS					
Transit integration	Coordination with Metro bus network (specifically Route 2)	No transit integration issues identified		No transit integration issues identified	
Transit vehicle delay	Peak hour delay on Dodge west of 42nd St	Peak hour delay on Dodge west of 42nd St		No transit vehicle delay issues	
Vehicle requirement (peak/total)	6 buses/8 buses	6 buses/8 buses		4 streetcars/5 streetcars	
Transit vehicle lifespan	12 years	12 years		30 years	
Passenger capacity	40-90 passengers	40-90 passengers		130-160 passengers	
Bicycle capacity	3 maximum	3 maximum		4-6 maximum	

(Table continues on next page)

Table 14 (cont)

Criteria	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
Passenger benefits	Narrow aisle unless 2+1 seating; modern low floor vehicle, reliable travel time, platform fare collection	Narrow aisle unless 2+1 seating; modern low floor vehicle, reliable travel time, platform fare collection		Wider aisle; modern low floor vehicle, reliable travel time, platform fare collection	
Access	Near level boarding (requires bridge plates or ramps/lifts)	Near level boarding (requires bridge plates or ramps/lifts)		Level boarding	
System identification	Unique branding, custom vehicles/stops	Unique branding, custom vehicles/stops		Unique branding, custom vehicles/stops	
Expansion opportunities	Extension to Westroads	Extension to Westroads		Possible but not identified	
PHYSICAL CONSTRAINTS					
Transit operations	No transit operation issues	No transit operation issues	Potential transit queuing in single contraflow lane	At-grade crossing of UP spur line on Fahey	At-grade crossing of UP spur line on Fahey; potential transit queuing in single contraflow lane
Right-of-way	Dodge St right-of-way controlled by Nebraska Department of Roads	No right-of-way issues identified		Right-of-way needed for maintenance and storage facility, substations, minor curb cuts	
Street grade	No street grade issues	No street grade issues		Farnam between 42nd St and 40th St	
Bridge structures	I-480 bridge structures on Dodge/Douglas if modified for S-curve	No bridge structure issues		10th St bridge; I-480 bridge structure on Farnam	

(Table continues on next page)

Table 14 (cont)

Criteria	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
ENVIRONMENTAL ISSUES					
Air quality	No air quality issues identified	No air quality issues identified		No air quality issues identified	
Consistency with local/state plans	Yes; Consistent with previous and ongoing plans: Downtown Master Plan (2009), Environmental Element (2010), Transportation Master Plan Update (2012), Downtown Parking Management Plan (2011), MAPA Heartland 2050 (Ongoing), and MAPA/ Metro Regional Transit Vision (Ongoing)	Yes; Consistent with previous and ongoing plans: Downtown Master Plan (2009), Environmental Element (2010), Transportation Master Plan Update (2012), Downtown Parking Management Plan (2011), MAPA Heartland 2050 (Ongoing), and MAPA/Metro Regional Transit Vision (Ongoing)		Yes; Consistent with previous and ongoing plans: Downtown Master Plan (2009), Environmental Element (2010), Transportation Master Plan Update (2012), Downtown Parking Management Plan (2011), and MAPA Heartland 2050 (Ongoing)	
Land use	Consistent with existing and future land use	Consistent with existing and future land use		Consistent with existing and future land use	
Land acquisitions and relocations	Dodge Street right-of-way controlled by Nebraska Department of Roads	No land acquisition and relocation issues identified		Right-of-way needed for maintenance and storage facility, substations, minor curb cuts	
Environmental justice	Unknown; Title VI analysis to be completed during environmental documentation	Unknown; Title VI analysis to be completed during environmental documentation		Unknown; Title VI analysis to be completed during environmental documentation	
Noise and vibration	No noise and vibration issues identified	No noise and vibration issues identified		Noise and vibration/ electromagnetic interference at UNMC	

(Table continues on next page)

Table 14 (cont)

Criteria	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
Hazardous materials	No hazardous material issues identified	No hazardous material issues identified		Possible at maintenance and storage facility site location	
Wetlands/Waters of the U.S.	Does not affect wetlands or waters of the U.S.	Does not affect wetlands or waters of the U.S.		Does not affect wetlands or waters of the U.S.	
Clean Water Act/ Section 402	Unlikely to create new stormwater and/or sediment runoff	Unlikely to create new stormwater and/or sediment runoff		Unlikely to create new stormwater and/or sediment runoff	
Floodplains/flooding	Outside 100 year floodplain based on Flood Insurance Rate Map	Outside 100 year floodplain based on Flood Insurance Rate Map		Outside 100 year floodplain based on Flood Insurance Rate Map	
Navigable waterway	Does not affect navigable waterways	Does not affect navigable waterways		Does not affect navigable waterways	
Wild and scenic rivers	Does not affect wild and scenic rivers	Does not affect wild and scenic rivers		Does not affect wild and scenic rivers	
Biological resources	Does not affect biological resources	Does not affect biological resources		Does not affect biological resources	
Traffic	Restricts outside lane on Dodge/Douglas between 31st St and 10th St to transit, right turns, and parallel parking	Restricts outside lane on Farnam/Harney between 31st St and 10th St to transit, right turns, and parallel parking	Lane reduction to 2 lanes for westbound Farnam; may restrict some driveway access.	Restricts outside lane on Farnam/Harney between 31st St and 10th St to transit, right turns, and parallel parking	Lane reduction to 2 lanes for westbound Farnam; may restrict some driveway access.
Parking	Parking loss at stop locations	Parking loss at stop locations	Parking loss at stop locations and south side of Farnam; conversion of angle parking to parallel parking on Farnam	Parking loss at stop locations	Parking loss at stop locations and south side of Farnam; conversion of angle parking to parallel parking on Farnam

(Table continues on next page)

Table 14 (cont)

Criteria	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
Energy	Creates net energy consumption reduction	Creates net energy consumption reduction		Creates net energy consumption reduction	
Cultural resources	Unknown; Cultural resources analysis to be completed during environmental documentation	Unknown; Cultural resources analysis to be completed during environmental documentation		Unknown; Cultural resources analysis to be completed during environmental documentation	
Section 4(f) resources	Unknown; Section 4(f) resource analysis of parklands to be completed during environmental documentation	Unknown; Section 4(f) resource analysis of parklands to be completed during environmental documentation		Unknown; Section 4(f) resource analysis of parklands to be completed during environmental documentation	
Construction issues	No construction issues identified	No construction issues identified	Conversion of Farnam for contraflow; BRT guideway construction	Streetcar guideway construction	Conversion of Farnam for contraflow; streetcar guideway construction
Secondary development	Moderate potential for secondary development	Moderate potential for secondary development		Large potential for secondary development	
Prime or unique farmlands	Does not affect prime or unique farmland	Does not affect prime or unique farmland		Does not affect prime or unique farmland	
Utilities	No utility issues identified	No utility issues identified	Utility relocation in BRT guideway	Utility relocation in streetcar guideway	Utility relocation in streetcar guideway

(Table continues on next page)

Table 14 (cont)

Criteria	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
LAND USE AND URBAN DESIGN					
Land use and density	Compliments land use/ density and urban design plans and policies, particularly Downtown Master Plan (2009), Environmental Element (2010), Transportation Master Plan Update (2012), and MAPA Heartland 2050 (Ongoing)	Compliments land use/density and urban design plans and policies, particularly Downtown Master Plan (2009), Environmental Element (2010), Transportation Master Plan Update (2012), and MAPA Heartland 2050 (Ongoing)		Compliments land use/density and urban design plans and policies, particularly Downtown Master Plan (2009), Environmental Element (2010), Transportation Master Plan Update (2012), and MAPA Heartland 2050 (Ongoing)	
Urban design					
SAFETY					
Safety	Pedestrian environment on Dodge (higher travel speeds/ volumes); at-grade crossing of Union Pacific spur line on Fahey	At-grade crossing of Union Pacific spur line on Fahey	Pedestrian access from parallel parking between contraflow lane and travel lane; at-grade crossing of Union Pacific spur line on Fahey	At-grade crossing of Union Pacific spur line on Fahey	Pedestrian access from parallel parking between contraflow lane and travel lane; at-grade crossing of Union Pacific spur line on Fahey
ECONOMIC DEVELOPMENT					
Economic development	1,200 jobs; 1,650 residents, $305 million development (based on 15 year forecast)	1,200 jobs; 1,350 residents; $262 million development (based on 15 year forecast)		8,500 jobs; 3,150 residents; $1 billion development (based on 15 year forecast)	

(Table continues on next page)

Table 14 (cont)

Criteria	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
FUNDING SOURCES					
Funding sources	Funding from Metro transit reallocation, joint transit improvements, federal grants, tax increment financing, and other creative financing strategies	Funding from Metro transit reallocation, joint transit improvements, federal grants, tax increment financing, and other creative financing strategies		Funding from parking revenue, private resources, business improvement districts, tax increment financing, and/or federal grants	
Consistency with local/state plans	Yes; Consistent with previous and ongoing plans: Downtown Master Plan (2009), Environmental Element (2010), Transportation Master Plan Update (2012), Downtown Parking Management Plan (2011), MAPA Heartland 2050 (Ongoing), and MAPA/Metro Regional Transit Vision (Ongoing)	Yes; Consistent with previous and ongoing plans: Downtown Master Plan (2009), Environmental Element (2010), Transportation Master Plan Update (2012), Downtown Parking Management Plan (2011), MAPA Heartland 2050 (Ongoing), and MAPA/Metro Regional Transit Vision (Ongoing)		Yes; Consistent with previous and ongoing plans: Downtown Master Plan (2009), Environmental Element (2010), Transportation Master Plan Update (2012), Downtown Parking Management Plan (2011), and MAPA Heartland 2050 (Ongoing)	

SCREENING RESULTS

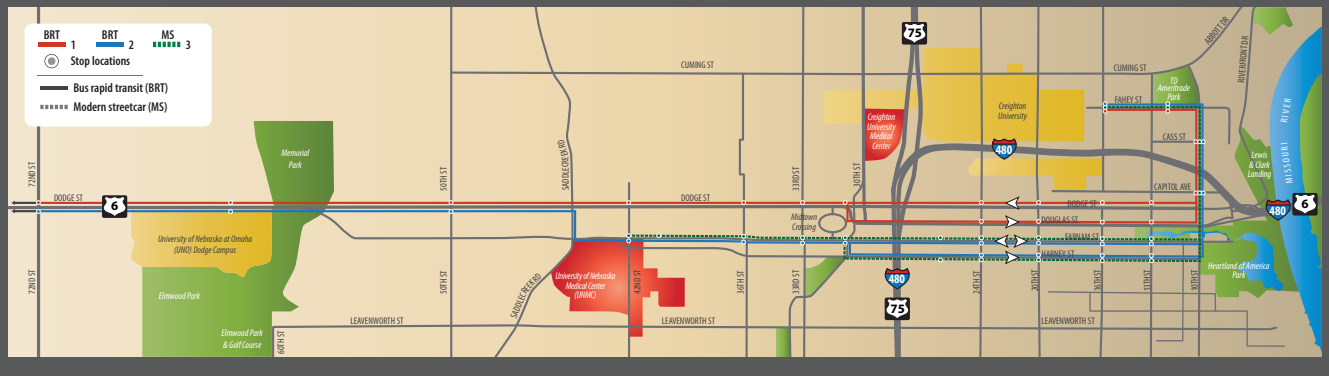
Transit Frequency and Daily Operating Hours remain the same for all Alternatives.

Transit Frequency	Peak	Off-Peak	Evening
	10 MINS	15 MINS	20 MINS

Daily Operating Hours	Mon-Fri	Sat	Sun
	19 HOURS	18 HOURS	12 HOURS

Alternatives	1	2	2A	3	3A
SERVICE	BRT Dodge/Douglas	BRT Farnam/Harney Couplet	BRT Farnam Contraflow	Streetcar Farnam/Harney Couplet	Streetcar Farnam Contraflow
Vehicle Requirement					
Capacity (= 10 passengers)					
Riders per day (= 1000 passengers)	1,180	1,430	1,430	1,380	1,380
CAPITAL COST (in millions) ($ = $100 million)	$ $36.7	$ $37.2	$ $42.5	$$ $141.4	$$ $141.7
ANNUAL O&M (in millions) ($ = $1 million)	$$$ $2.6/year	$$$ $2.7/year	$$$ $2.7/year	$$$$$$$ $6.9/year	$$$$$$$ $6.9/year

Figures from S.B. Friedman: *Central Omaha Transit Alternatives Analysis - Forecast of Development Impacts of BRT and Streetcar Alternatives*



Example of a Contra-Flow Alternative

Example of a Couplet Alternative

WHAT DOES OMAHA SAY?

Improved transit will help Omaha grow.

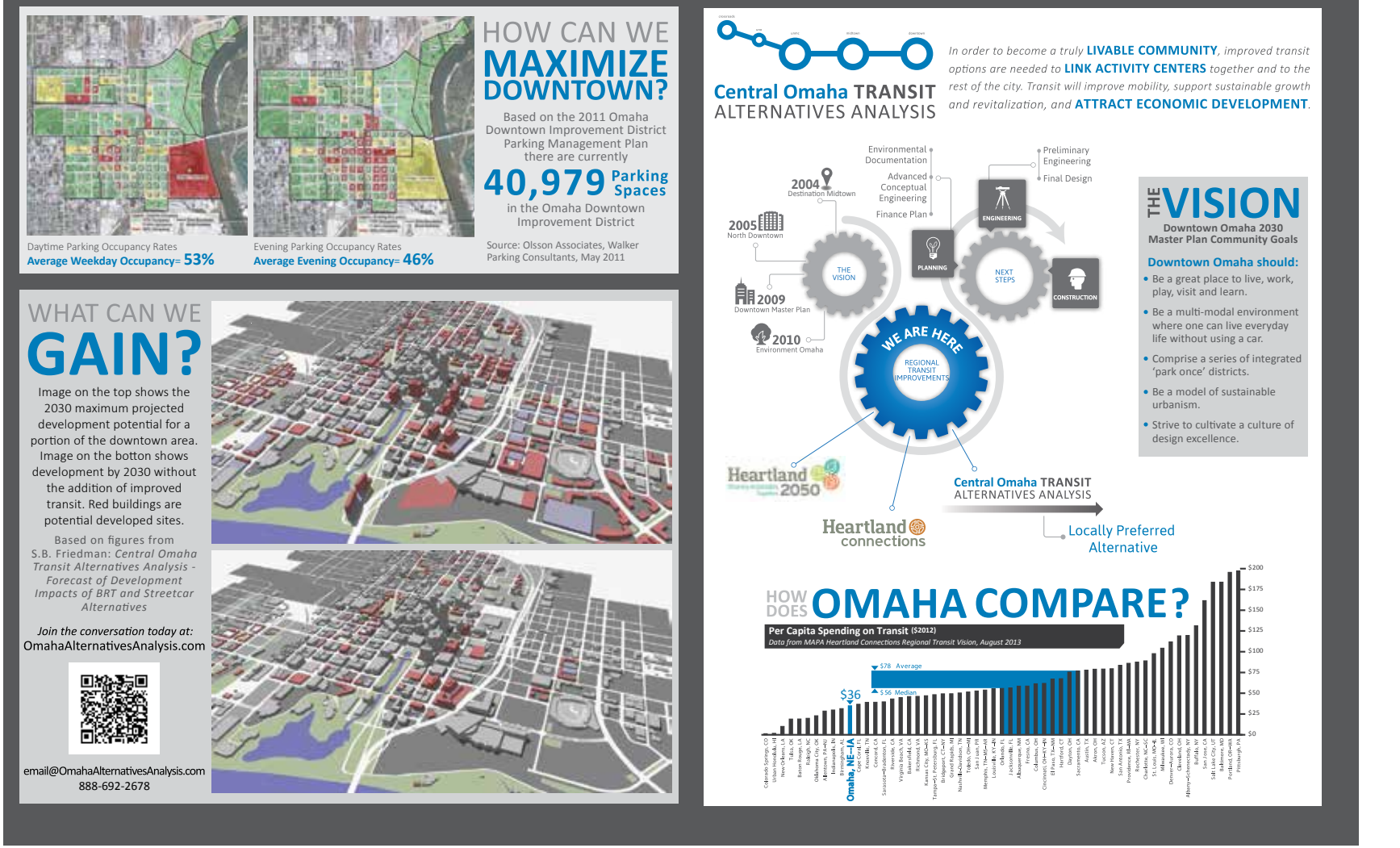
More multi-modal options and connections are needed.

Current transit improvements should be expandable to other areas of Omaha and Council Bluffs.

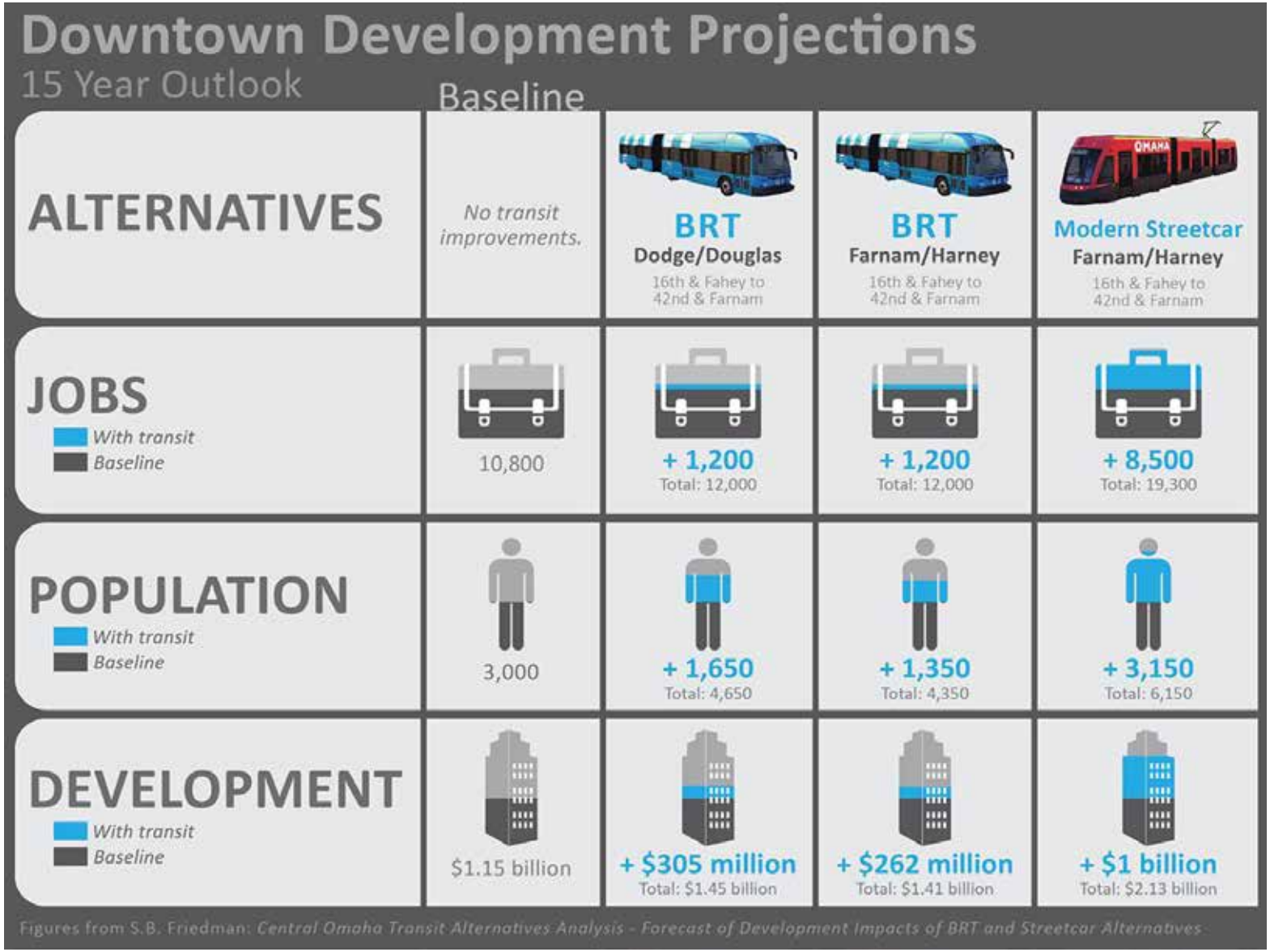
Transit needs to work within budget constraints and maximize the investments made.

Transit should be sustainable and compatible with the current land use and economic goals.

Handout showing final screening results that was distributed at the last public meeting (side 1)



Handout showing final screening results that was distributed at the last public meeting (side 1)



Handout showing final screening results that was distributed at the last public meeting (handout insert)

4.2.1 Additional Issues for Discussion

Travel Forecasting

The transit component of the MAPA Model was still being developed when Final Screening began. Therefore, an "off-model" ridership forecast was produced using the Small Area Model. This ridership estimate was based on a regression analysis in which the transit ridership at the stop level is related to key variables such as population density, employment density, and transit service frequency. This model is not based on the transportation network model and, therefore, does not look at the transit system as a whole. While the ridership forecasts were relatively high for all alternatives, the Small Area Model does not forecast ridership in the context of future changes to the regional transit network.

It is recommended that the BRT and Modern Streetcar ridership estimates in Phase 2 (Environmental Documentation and Conceptual Engineering) be made using the MAPA Model. These estimates will consider changes to the background bus network, development, and land use assumptions.

Utilities

Given the uncertainty related to the future roadway cross-section for transit within each of the corridors, it is not possible to identify specific utility issues during this phase of study. Therefore, it is recommended that detailed utility investigation be included in Phase 2 (Environmental Documentation and Conceptual Engineering).

Because the evaluation during this phase of study is focused at the route level, a general overview of utility issues is provided. Approximately 15 utility entities have utility infrastructure within the study area. This consists of City owned sewers, water and gas owned by the Metropolitan Utilities District (MUD), Energy Systems downtown steam/chilled water system, Omaha Public Power District power, and a number of communication lines owned by several private companies.

In general, Bus Rapid Transit alternatives would have minor impacts to utilities. Subsequent phases of project development will determine the need for bypass lanes or other minor street construction. Such construction might result in localized impacts to utilities. A dedicated contra flow lane for transit only will require a policy decision as to if parallel utilities running underneath the travel lane should be relocated in order to avoid pro-longed shut down of the transit way for utility maintenance or replacement.

With the construction of track and guideway, a modern streetcar system has the potential for more underground utility conflict. Due to the electrical propulsion, underground utility owners have concern for the impact of stray currents. Pipe corrosion was found to be a problem in early 20th century streetcar systems but modern streetcar track systems are now constructed with cathodic protection systems to prevent stray current issues to underground pipes.

A streetcar track system typically requires a 10-foot wide, 18-inch deep cut be made into the street. Due to the shallow nature of the street cut, direct impacts to underground

utilities are not typically encountered. Of greatest concern are underground utilities running longitudinally under the streetcar line. As noted with the Bus Rapid Transit contraflow lane, a decision will need to be made jointly between the modern streetcar operator, the City, and the respective utility companies as to if shut down times for maintenance or line replacement can be tolerated, or if the modern streetcar line should be free of underground utilities. Modern streetcar lines across the United States have approached this both ways. Underground utilities transversely crossing the modern streetcar line are unavoidable and not subject to relocation. In such cases it is common practice to encase utility lines that are within 2 feet of the track slab.

Regardless of utility conflicts, utility companies may take this opportunity to replace aging infrastructure while the street is under construction. Many of the underground utilities within the study area date back to the mid 20th century or earlier.

The overhead traction power typically requires overhead utilities crossing the streetcar line to be raised to provide 26 feet of vertical clearance. Utilities within the downtown are almost exclusively underground and thus overhead conflicts would be minimal. Overhead conflicts west of I-480 are more probable, but overhead utility changes are relatively inexpensive.

By ordinance, utilities within the public right of way have to relocate due to a street project at their own expense. During conceptual engineering, a legal opinion will need to be made as to if a modern streetcar line constitutes a street project subject to the City ordinance. Another factor may be the ownership structure of the modern streetcar system and its applicability to the City Ordinance.

As such, the utility relocation costs directly attributable to the project could range from city sewer conflict resolution only, to inclusive of all utility conflicts regardless of the owner. This is additionally subject to policy decision related to leaving underground utilities under the track slab that are not directly impacted.

In recognition of this, a placeholder cost of $1 million per mile for utility relocations has been included in the capital cost estimate. During initial engineering stages, detailed surveys of utilities will be conducted such that precise utility conflicts can be determined and subsequent utility policy decisions made.

4.3 Final Screening Results

Based on the results of the final screening evaluation, it is recommended that **Alternatives 2/2A** and **3/3A** be advanced pending further refinement. These alternatives are being advanced because of the following reasons:

- **Alternatives 2/2A** and **3/3A** serve different travel markets so both are being advanced.
  - **Alternative 2/2A** (Bus Rapid Transit) serves a regional travel market between Downtown Omaha, Midtown, UNMC, UNO, and Crossroads.
  - **Alternative 3/3A** (Modern Streetcar) serves an urban circulator travel market between North Downtown, Downtown, Midtown, and UNMC.
- The Farnam/Harney Street corridor received the most support for a transit priority corridor.
  - The Farnam/Harney Street corridor more directly serves Midtown and UNMC.
  - The MAPA/Metro Regional Transit Vision (RTV) study identifies Farnam Street as a potential transitway.
- The Farnam/Harney Street corridor is controlled by the City of Omaha, whereas the Dodge/Douglas Street corridor is a state highway and controlled by the Nebraska Department of Roads.

Table 15 summarizes the results of the final screening. Figure 25 illustrates the alternatives that are being advanced from final screening as a "Combined Alternative".

Tacoma Link Streetcar, Tacoma, WA

EMX Bus Rapid Transit, Eugene, OR

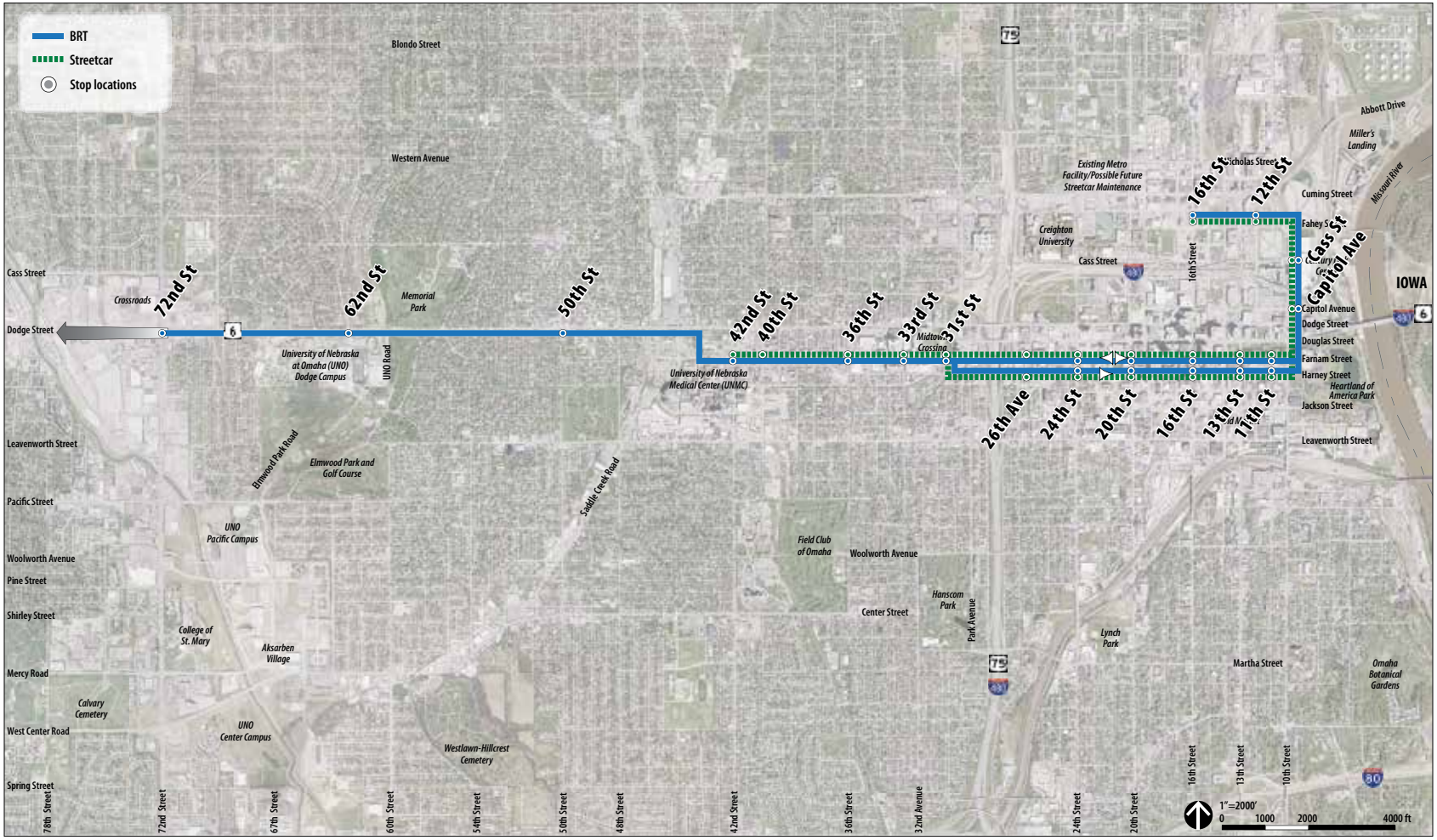
16th Street MallRide, Denver, CO

Table 15 Final Screening Results Summary

Feature	Alternative 1	Alternative 2	Alternative 2A	Alternative 3	Alternative 3A
	BRT	BRT		Streetcar	
	Dodge/Douglas Couplet	Farnam/Harney Couplet	Farnam Contraflow	Farnam/Harney Couplet	Farnam Contraflow
East terminus	North Downtown	North Downtown		North Downtown	
West terminus	Crossroads	Crossroads		UNMC	
Frequency (peak/off-peak/evening)	10/15/20 minutes	10/15/20 minutes		10/15/20 minutes	
Daily operating hours (M-F/Sat/Sun)	19/18/12 hours	19/18/12 hours		19/18/12 hours	
Distance	5.87 miles	6.15 miles		3.34 miles	
Vehicle travel time	23:55	24:52		17:34	
Vehicle requirement (peak/total)	6/8 buses	6/8 buses		4/5 streetcars	
Ridership[1]	1,180 passengers	1,430 passengers		1,380 passengers	
Capital cost ($2013)	$36,638,000	$37,196,000	$42,543,000	$141,386,000	$141,724,000
Capital cost per mile ($2013)	$6,242,000	$6,048,000	$7,102,000	$42,331,000	$44,567,000
Annual O&M cost ($2013)	$2,647,486	$2,681,234		$6,883,515	
RECOMMENDATION	**Eliminate**	**ADVANCE**	**ADVANCE**	**ADVANCE**	**ADVANCE**

[1] *Ridership estimates were calculated using the Small Area Model.*

Figure 25 Final Screening Results



4.4 Alternative Refinement

Alternative 2/2A (Bus Rapid Transit) and **Alternative 3/3A (Modern Streetcar)** are being advanced because they serve different travel markets in the Farnam/Harney Street corridor. However, these alternatives were evaluated separately during final screening so they need to be reevaluated if they both will operate together. Therefore, it is necessary to refine the "Combined Alternative" to maximize the potential for each technology and alignment.

4.4.1 Combined Alternative

The following modifications are recommended for the Combined Alternative:

Alternative 2/2A (Bus Rapid Transit)

- Modify the east terminus to be at 10th Street in Downtown Omaha instead of 16th Street/Fahey Street in North Downtown.
  - The travel market in North Downtown is more suitable for a Modern Streetcar urban circulator than regional Bus Rapid Transit.
  - The MAPA/Metro RTV identifies the Farnam/Harney Street transit way and terminates at 10th Street.
  - The terminus at 10th Street preserves future expansion opportunities to the Omaha Airport and Council Bluffs, Iowa.
- Modify the west terminus to extend BRT from 72nd Street/Dodge Street (Crossroads) to the Westroads Transit Center with additional stops at 84th Street, 90th Street, and at the Westroads Transit Center.
  - The project team received consistent feedback throughout the AA study that Bus Rapid Transit needs to be extended to Westroads. While the study area stops at 72nd Street/Dodge Street, it is recommended that the Bus Rapid Transit alternative be modified to serve Westroads.
  - The MAPA/Metro RTV Study identifies Bus Rapid Transit to the Westroads Transit Center.

Alternative 3/3A (Modern Streetcar)

- Modify east terminus to be at 12th Street/ Fahey Street so the Modern Streetcar alignment does not cross the Union Pacific spur line on Fahey Street.
  - The at-grade crossing of the Union Pacific spur line is a high risk item that will require substantial mitigation. The project team decided that much of the North Downtown travel market could be served by an initial line terminating the Modern Streetcar at 12th Street/Fahey Street.
- The terminus at 12th Street and Fahey Street preserves future expansion opportunities to other areas of North Downtown, Creighton University, and the Civic Auditorium Site.

4.4.2 Additional Issues for Discussion

Travel Forecasting

The ridership estimates for the Combined Alternative were calculated independently. The BRT ridership estimate includes the extended corridor from Crossroads to Westroads and was developed using the MAPA Model, which became available after Final Screening. The MAPA Model uses TransCAD software and runs concurrently with the vehicular highway network model to estimate transit ridership. This BRT ridership estimate for the Combined Alternative is the same ridership estimate included in the BRT TIGER application (April 2014). The Modern Streetcar ridership estimate for the Combined Alternative continues to use the Small Area Model since the current MAPA Model does not modify future development and land use assumptions.

It is recommended that the BRT and Modern Streetcar ridership estimates in Phase 2 (Environmental Documentation and Conceptual Engineering) be made using the MAPA Model. These estimates will consider changes to the background bus network, development, and land use assumptions.

Dodge/Douglas Street Corridor

Given the complexity of implementing both a Bus Rapid Transit and Modern Streetcar

project in the Farnam/Harney Street corridor, it is recommended that the Dodge/Douglas Street corridor between UNMC and 10th Street be preserved as a secondary option for Bus Rapid Transit in Phase 2 (Environmental Documentation and Conceptual Engineering). There are a number of conceptual design and construction phasing issues that may require additional evaluation to determine the feasibility of operating multiple technologies in the same corridor.

Table 16 provides further detail on the Combined Alternative and the alignment modifications to **Alternative 2/2A (Bus Rapid Transit)** and **Alternative 3/3A (Modern Streetcar)**. Based on the alternative refinement, the Combined Alternative is identified as the Locally Preferred Alternative (LPA). Figure 26 illustrates the LPA.

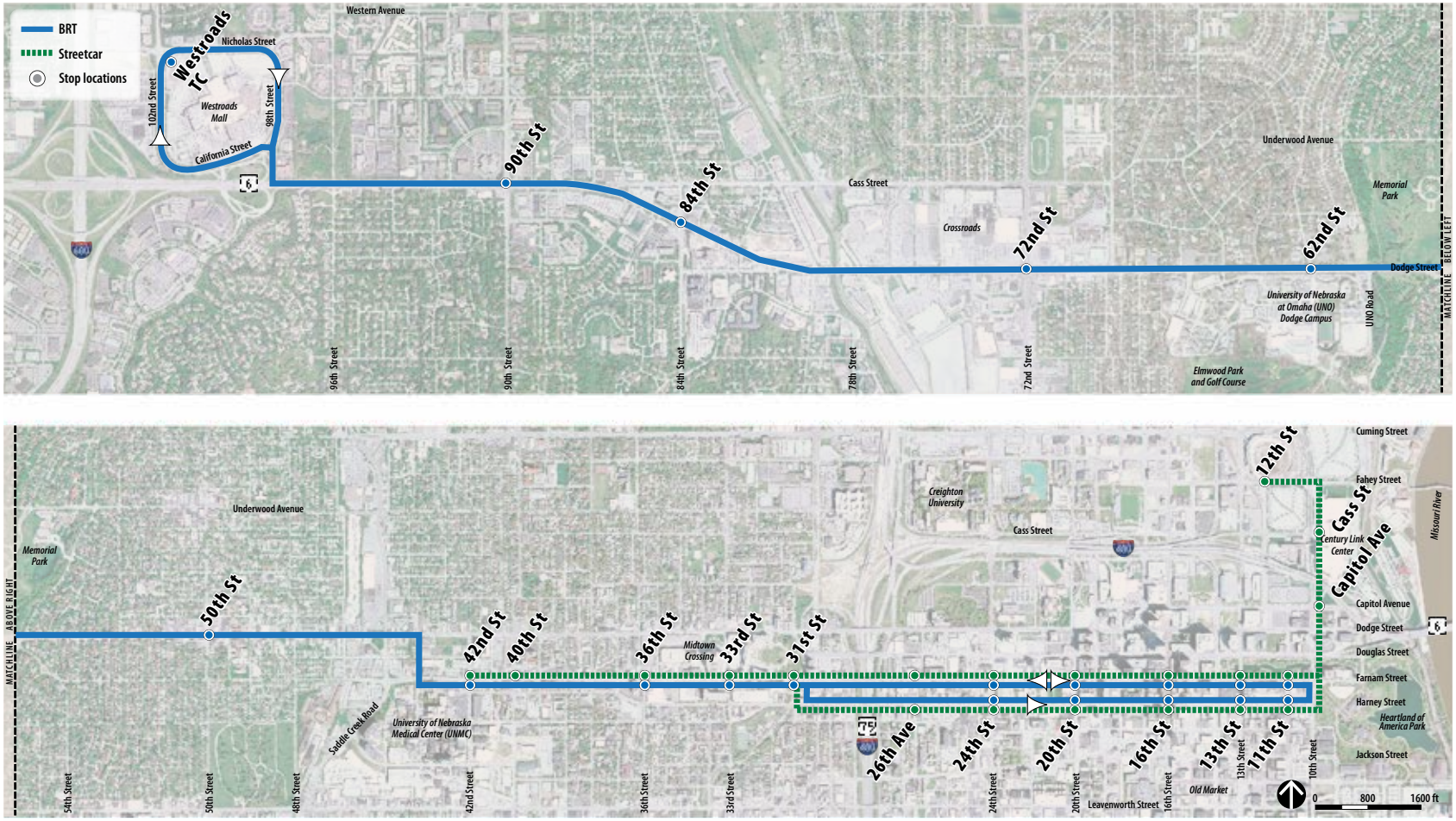
The ridership, capital cost, and annual operation and maintenance (O&M) cost estimates for the Combined Alternative were calculated independently. This was done so the individual project elements could be identified. It is likely there would be capital cost and O&M cost savings if the Bus Rapid Transit and Modern Streetcar projects were planned, designed, and constructed simultaneously.

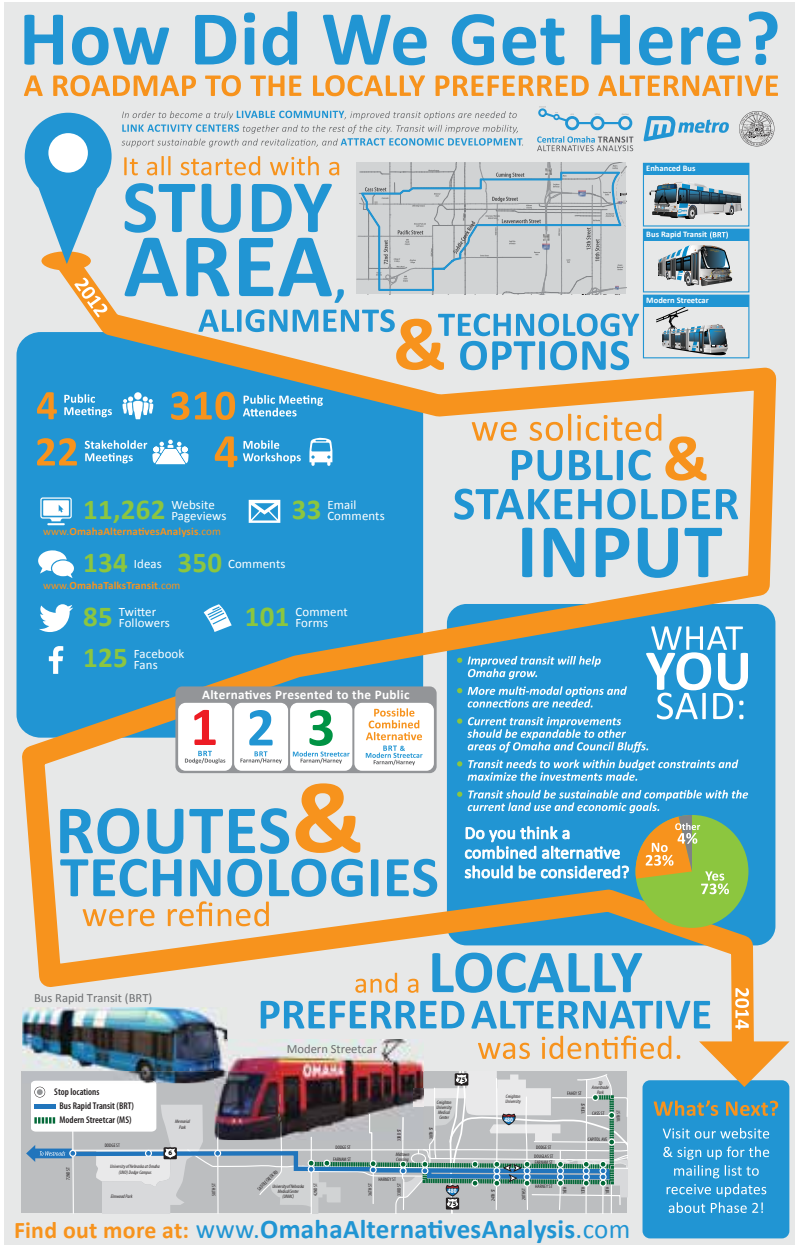
Table 16 Locally Preferred Alternative (Combined Alternative)

Feature	Locally Preferred Alternative (Combined Alternative)	
	Alternative 2 (Modified)	Alternative 3 (Modified)
	Bus Rapid Transit (BRT)	Modern Streetcar
East terminus	Downtown (10th St/Farnam/Harney)	North Downtown (12th St/Fahey)
West terminus	Westroads Transit Center	UNMC (42nd St/Farnam)
Alignment between 31st and 10th St	Farnam/Harney Couplet or Farnam Contraflow	Farnam/Harney Couplet or Farnam Contraflow
Modification	Modify the east terminus to be at 10th St in Downtown Omaha instead of 16th St/Fahey in North Downtown. Modify the west terminus to extend BRT from 72nd St/Dodge (Crossroads) to the Westroads Transit Center with additional stops at 84th St, 90th St, and at the Westroads Transit Center.	Modify east terminus to be at 12th St/Fahey so the Modern Streetcar alignment does not cross the Union Pacific spur line on Fahey
Frequency (peak/off-peak/evening)	10/15/20 minutes	10/15/20 minutes
Daily operating hours (M-F/Sat/Sun)	19/18/12 hours	19/18/12 hours
Distance	7.98 miles	3.22 miles
Vehicle travel time	26:59	15:24
Vehicle requirement (peak/total)	6/8 buses	4/5 streetcars
Ridership	2,740[1] passengers	1,380[2] passengers
Capital cost ($2013) couplet / contraflow	$34,466,000 / $39,185,000	$134,457,000 / $133,844,000
Capital cost per mile ($2013) couplet / contraflow	$4,319,000 / $5,011,000	$41,757,000 / $43,740,000
Annual O&M cost ($2013)	$3,008,844	$6,347,246

[1] Alternative 2 (BRT modified) ridership estimate is from the BRT TIGER application using the MAPA Model.
[2] Alternative 3 (Streetcar Modified) ridership estimate is from the Small Area Model and includes the segment between North Downtown (12th St/Fahey) and UNMC (42nd St/Farnam).

Figure 26 Locally Preferred Alternative (Combined Alternative)





Handout summarizing public participation for the Central Omaha Transit Alternatives Analysis

Central Omaha

TRANSIT ALTERNATIVES ANALYSIS

April 2014