

# BARNUM NEIGHBORHOOD REPORT

2019

Bus Assessments Along Federal Boulevard

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# Part A: Project Context

# PROJECT INTRODUCTION

In cooperation with the City and County of Denver, this project assesses the bus stops along Federal Boulevard in west Denver. The city has identified Federal as one of the first streets to receive improvements under the Denver Moves: Transit plan. In order to make well informed decisions, the city is aiming to inventory the conditions of all the bus stops in the city. This report, developed by Srishti Murugan, Dashiell Bubar-Hall, Eric DeNardo, and Jamie Leaman-Miller, focuses on 6 bus stops located within the neighborhood of Barnum.

Barnum is a neighborhood located in west-central Denver. It is bounded by U.S Highway Six to the north, Federal Boulevard to the east, Alameda Avenue to the south, and Perry Street to the west. The team will conduct site assessments of bus stops in Barnum, examining their amenities, surroundings, and overall quality. The Team will also interview transit riders in the neighborhood to collect their perspectives on the available transit options. This information will be used to identify improvement areas and provide recommendations for better public transit and pedestrian options in the neighborhood.



Exhibit 1.1: Barnum Neighborhood Study Area

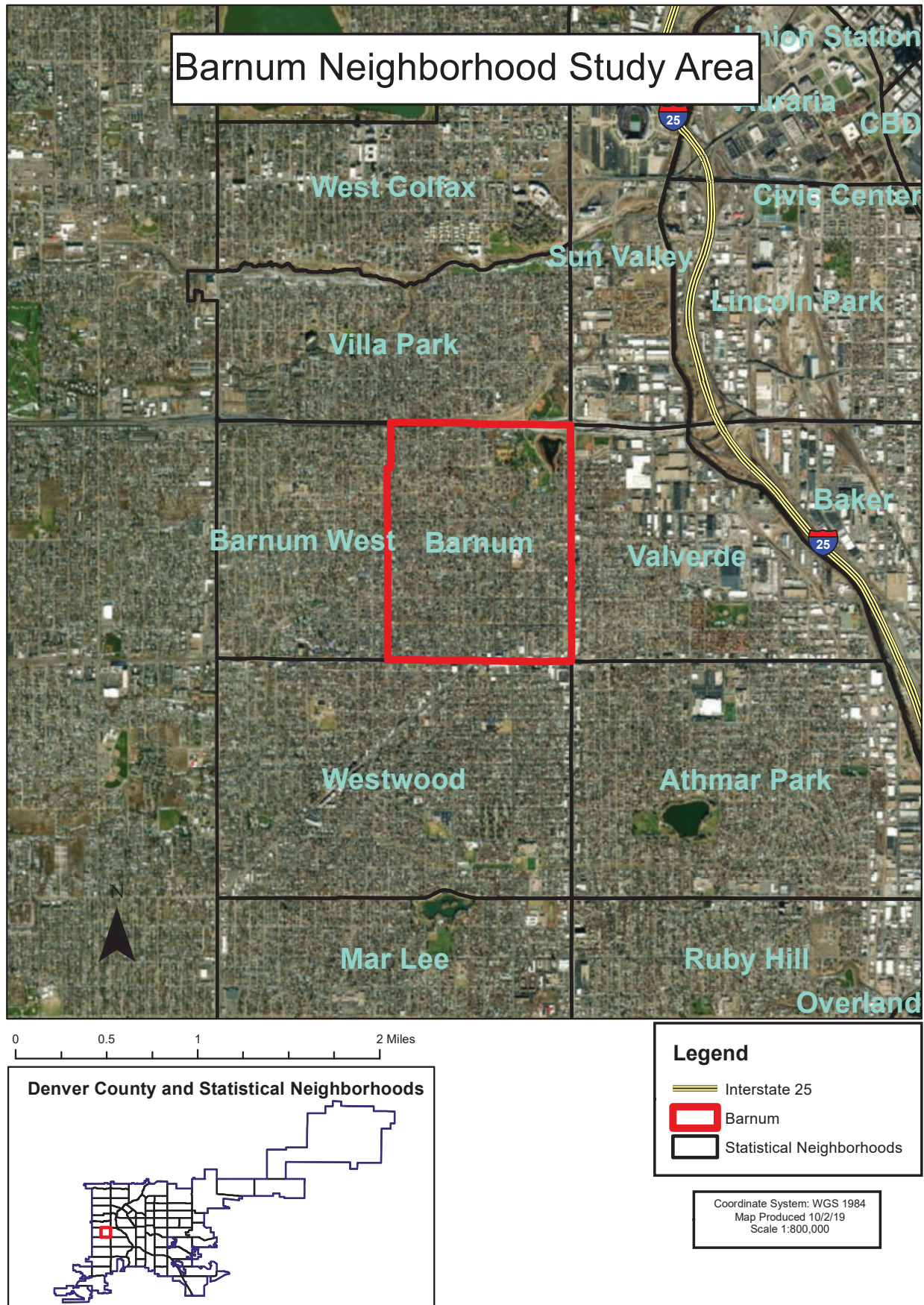
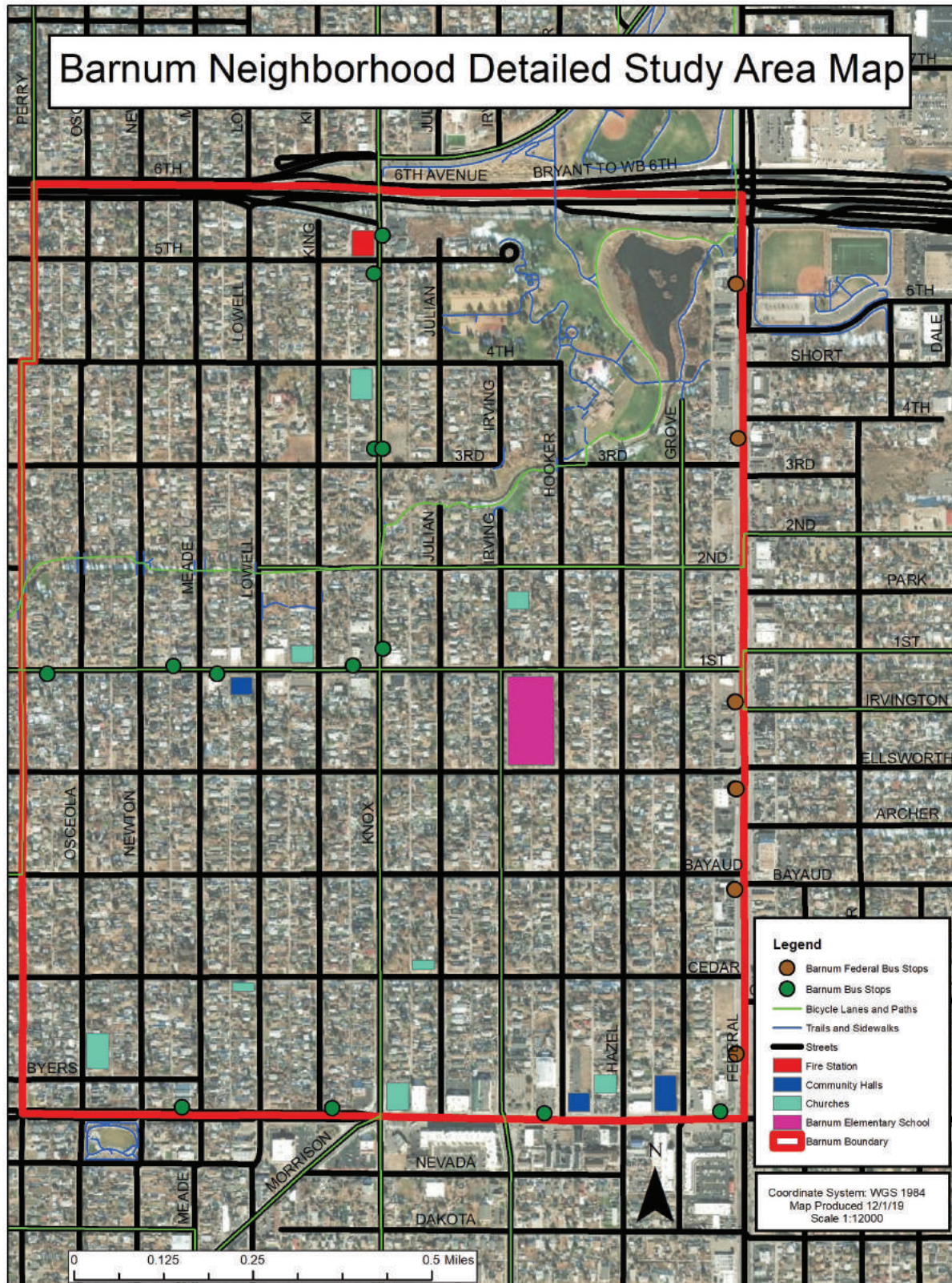


Exhibit 1.2: Detailed Study Area Map



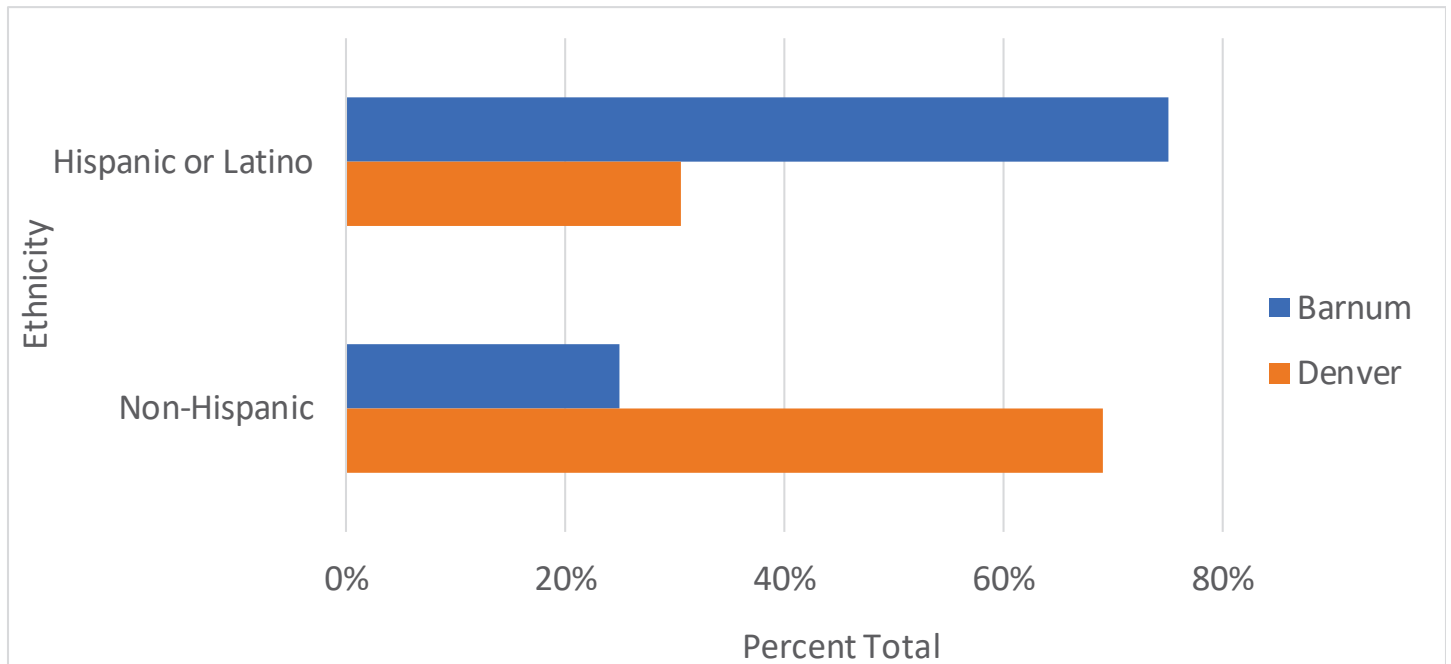
# DEMOGRAPHIC PROFILE

## *RACE & ETHNICITY*

Table 1.1: Population by Ethnicity

Ethnicity	Count		Percentage	
	Barnum	Denver	Barnum	Denver
Hispanic or Latino	4,844	207,100	75%	31%
Non-Hispanic	1,609	471,367	25%	69%
<b>Total</b>	<b>6,453</b>	<b>678,467</b>	<b>100%</b>	<b>100%</b>

Exhibit 1.3: Population Percentage by Ethnicity



Demographically, Barnum differs from the city of Denver in several important ways. Barnum has strong Hispanic roots; these families began settling in the neighborhood in the 1950s, and by the 1980s Barnum was a majority Hispanic neighborhood (DPL History). Today the neighborhood is 75% Hispanic, compared to only 30% for Denver as a whole. This is evident in the number of Spanish-advertising business and restaurants along the commercial streets that bound the neighborhood.

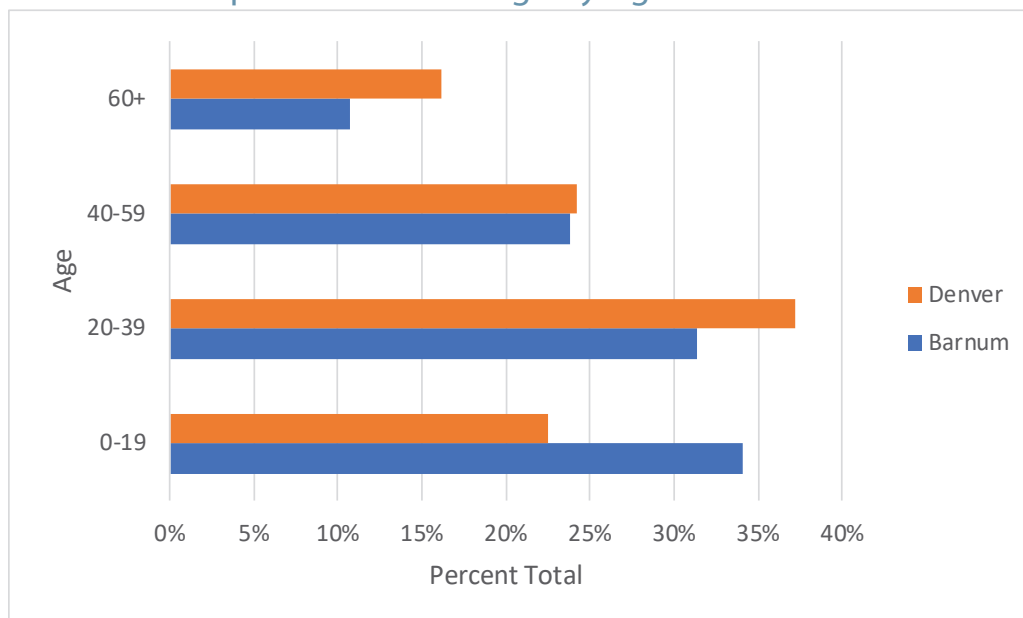
## *AGE*

Barnum is also a young neighborhood. Thirty four percent of its residents are under the age of 20, twelve percentage points higher than Denver as a whole (See Exhibit 1.4). It may be assumed that most of the residents under the age of 20 lack access to a personal vehicle and are therefore dependent on transit for travel.

Table 1.2: Population Count and Percentage by Age

Age	Count		Percentage	
	Barnum	Denver	Barnum	Denver
0-19	2,199	152,330	34%	22%
20-39	2,026	252,253	31%	37%
40-59	1,536	164,481	24%	24%
60+	692	109,403	11%	16%
<b>Total</b>	<b>6,453</b>	<b>678,467</b>	<b>100%</b>	<b>100%</b>

Exhibit 1.4: Population Percentage by Age





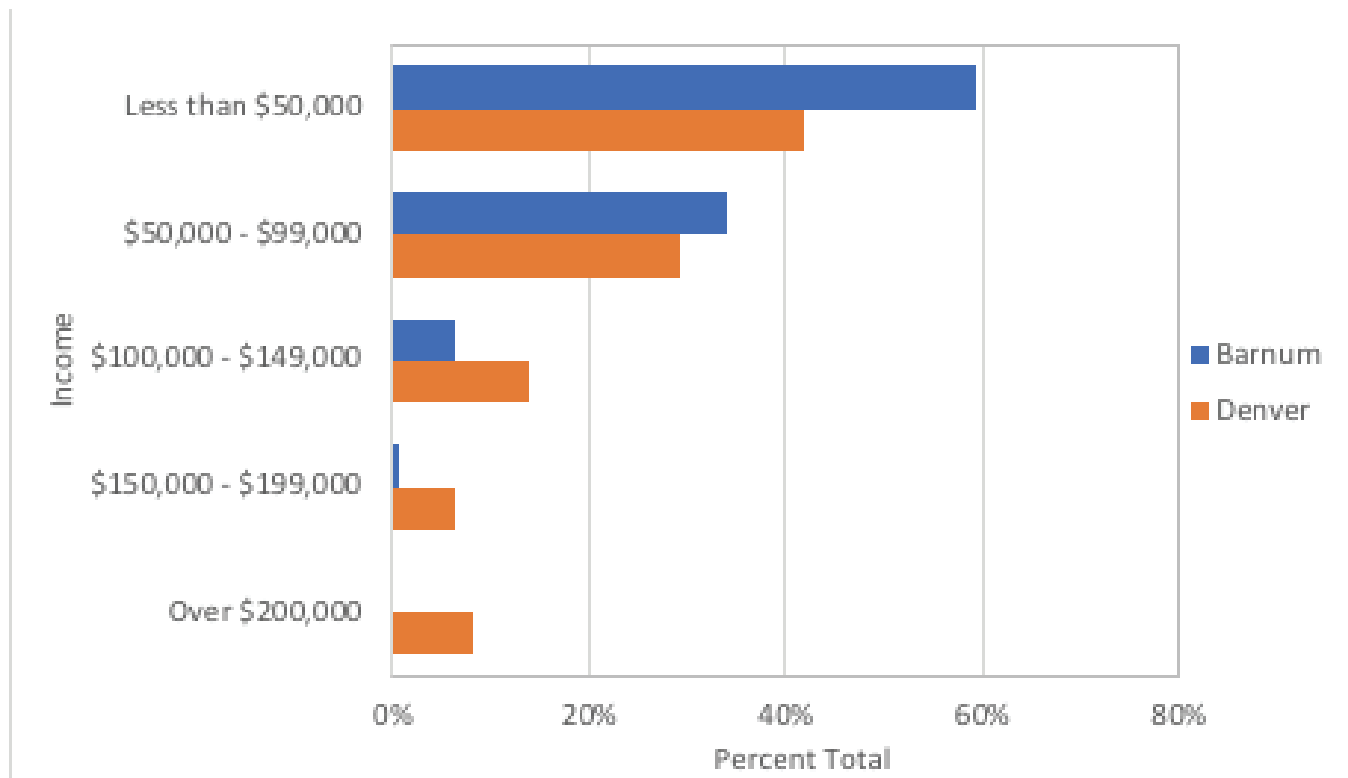
## *INCOME*

Historically, Barnum has been a working-class neighborhood and that legacy continues today (Denver Public Library). The median household income in the neighborhood is \$42,719, compared with \$60,098 in Denver. Nearly two-thirds of Barnum's households have an income lower than \$50,000, and no households earn more than \$200,000.

Table 1.3: Population by Household Income

Household Income	Count		Percentage	
	Barnum	Denver	Barnum	Denver
Less than 50,000	1,142	120,622	59%	42%
\$50,000 - \$99,000	653	84,194	34%	29%
\$100,000 - \$149,000	120	40,290	6%	14%
\$150,000 - \$199,000	10	18,673	1%	7%
Over \$200,000	0	23,483	0%	8%
<b>Total</b>	<b>1,925</b>	<b>287,262</b>	<b>100%</b>	<b>100.0%</b>

Exhibit 1.5: Population Percentage by Household Income



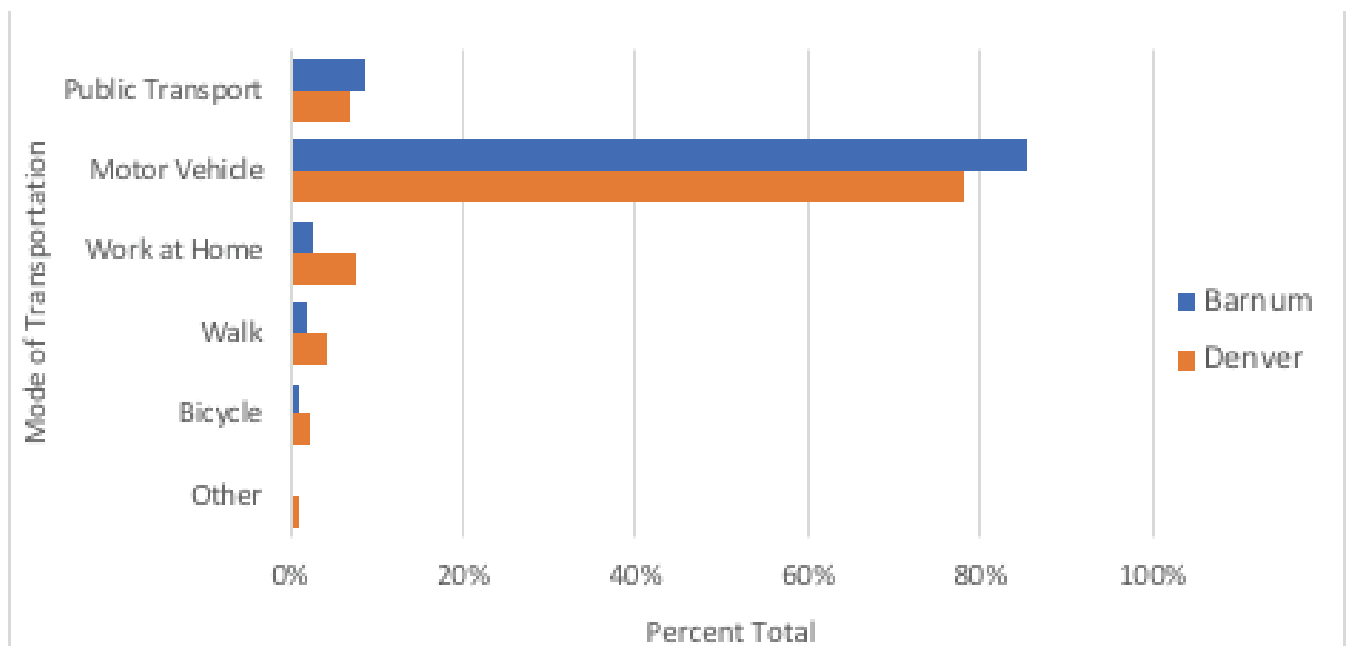
## *TRANSPORTATION*

Table 1.4: Population by Method of Transportation to Work

Means	Count		Percent Total	
	Barnum	Denver	Barnum	Denver
Public Transport	243	24,960	9%	7%
Motor Vehicle	2,386	286,512	85%	78%
Work at Home	74	27,869	3%	8%
Walk	58	16,133	2%	4%
Bicycle	31	8,081	1%	2%
Other	6	3,865	< 1%	1%
<b>Total</b>	<b>2,798</b>	<b>367,420</b>	<b>100%</b>	<b>100.0%</b>

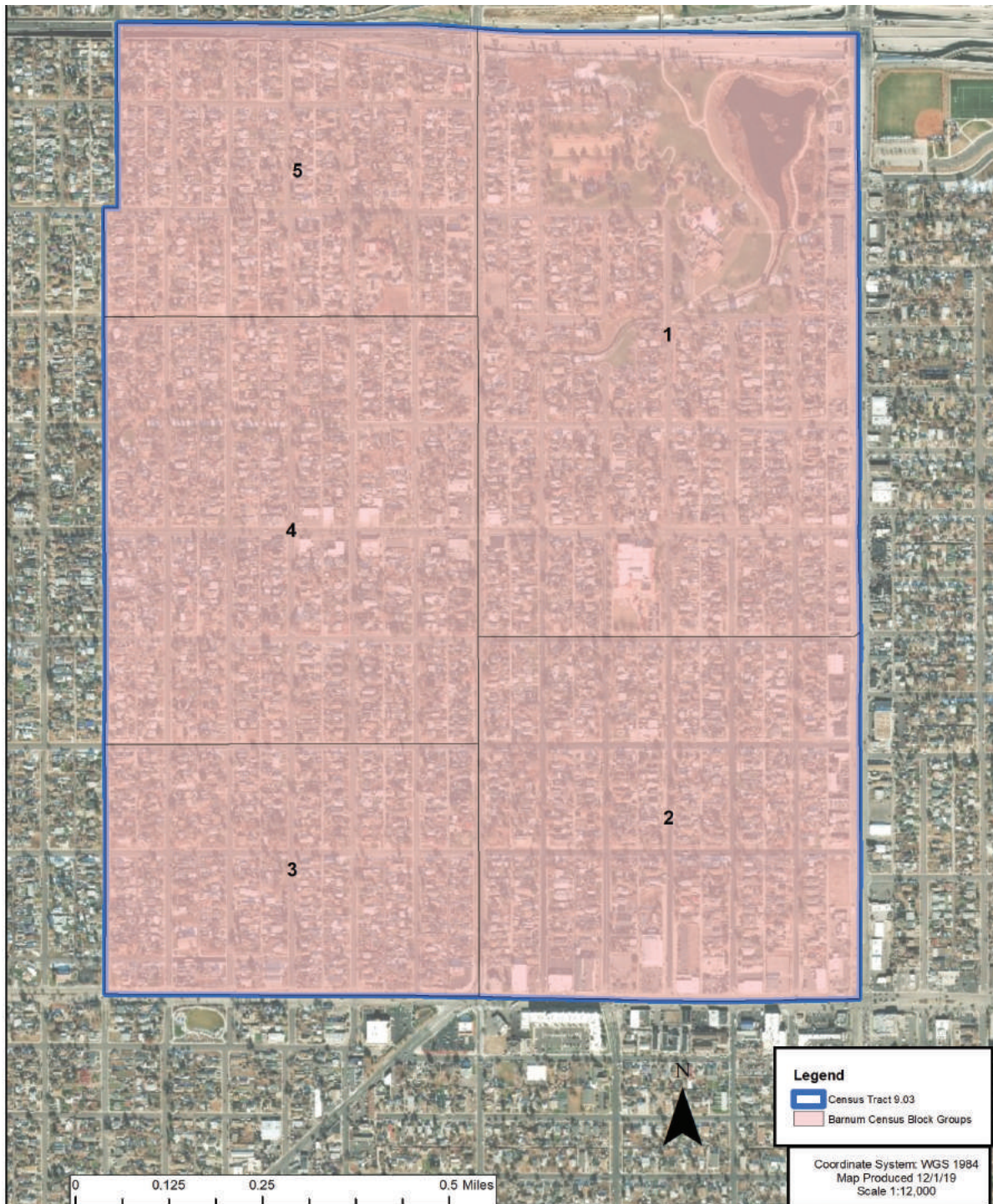
This income disparity effects people's means of transportation to work, as shown in Table 4. From this data, it is evident that there is demand for public transport in the neighborhood. Even given the limited options currently available, a higher percentage of Barnum residents use public transport than in Denver as a whole. Additionally, this commuter data is not reflecting the disproportionately large number of young people in the neighborhood, who presumably need other forms of transit than driving.

Exhibit 1.6: Population by Method of Transportation to Work



The demographic data was collected for Census Tract 9.03 from the 2017 American Community Survey 5-Year Estimates. Census tract 9.03 comprises all of Barnum and can be further broken into five block groups (see Exhibit 1.7).

Exhibit 1.7: Barnum Census Tracts and Block Groups



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## *Demographic Summary*

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Collectively, this demographic and geographic information provides further insight into the transit needs of the neighborhood. In an area with a lower median income than the city, many residents may prefer improved transit options to the costs of owning a vehicle. The large percentage of young residents suggest a demand for improved pedestrian and transit infrastructure. Many of the neighborhood blocks lack sidewalks, and bike lanes are also infrequent.



# Land Use and Transportation

The Barnum Neighborhood has a total of 17.5 miles of paved roads within its statistical boundary. The functional classification composition of the road system within Barnum is 11.3 miles of local, 3.2 miles of collector and 3 miles of arterial roads. The majority of the neighborhood are roads with a speed limit of 25 mph accounting for 12.4 miles of road. Additionally, 2.1 miles of 30 mph roads, 1.5 miles of 35 mph road and 1.5 miles of 55 mph roads along the perimeter. There are a total of 19 bus stops within the neighborhood boundary with three primary transit corridors: southbound Federal, westbound Alameda and through the middle of the neighborhood along 1st Ave and Knox Court running in both directions (see Exhibit 1.8). The Barnum neighborhood also contains 9.5 miles of bike lanes that traverse the neighborhood in both north/south and east/west orientations.

The Barnum Neighborhood has a total of 1856 parcels. Residential categories account for 1,667 parcels or 90% of all parcels in the neighborhood (see Exhibit 1.9). The majority of residential parcels are single unit with a total of 1,455. The remaining residential parcels are comprised of 110 two-unit and 102 multi-unit parcels. The largest non-residential land use category is vacant parcels totaling 76. The vacant parcels are mainly located along the Federal corridor with only a handful mixed throughout the rest of the neighborhood. There are a total of 45 commercial/retail parcels that are located along Federal, Alameda and the 1st Ave/Knox Court intersection. Parcels designated as public account for 15 units containing the Barnum Elementary School, Ross-Barnum Library, Denver Fire Station, three community halls and eight churches. The Northeast corner of the neighborhood contains the Barnum Park which covers about 56 acres. This large park also features the Barnum Park Lake Reservoir in its center.

Exhibit 1.8: Barnum Transportation Map

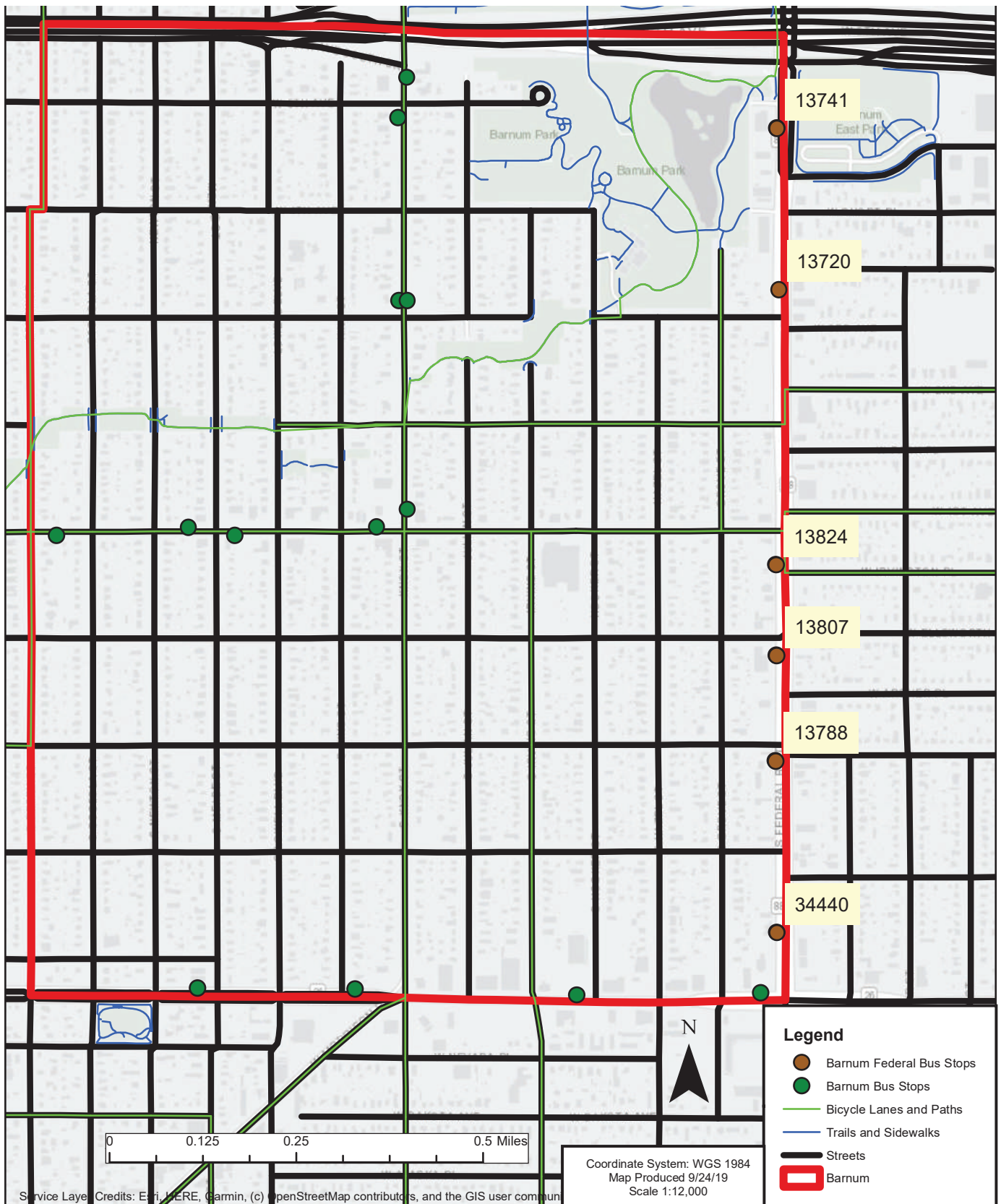
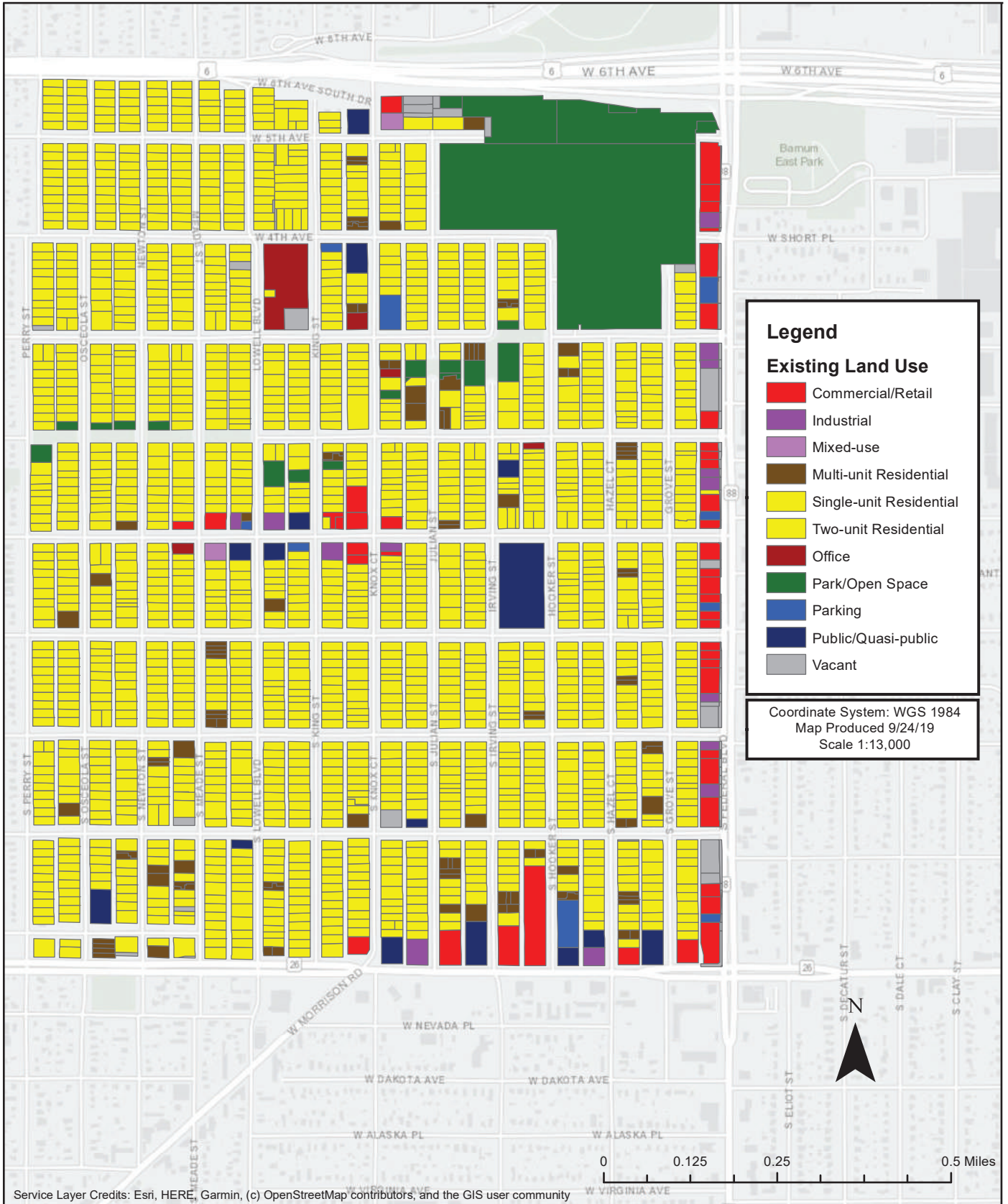


Exhibit 1.9 Barnum Land Use



# URBAN FABRIC



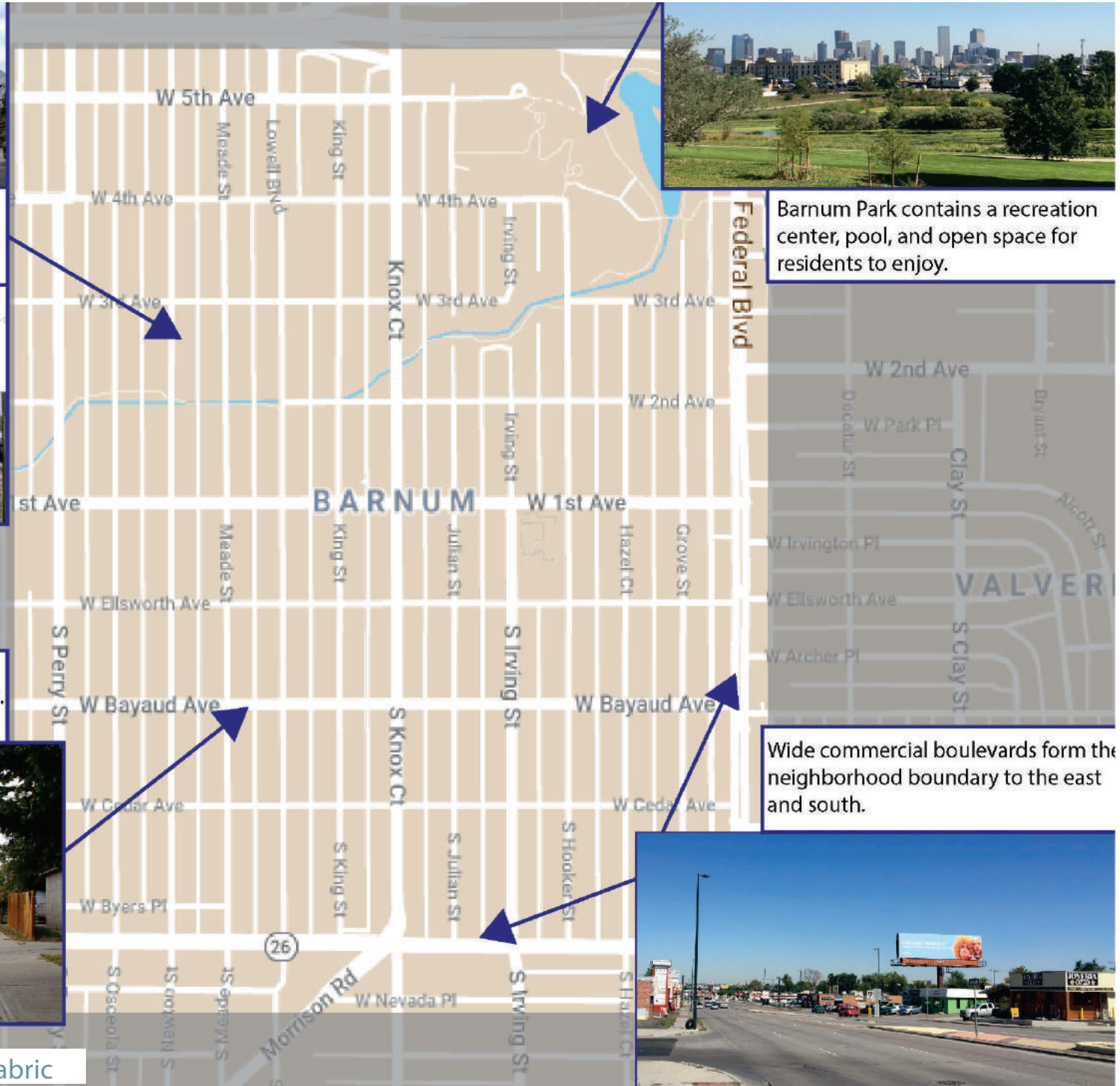
The majority of structures in Barnum are single-family residences.



Most of the interior streets are residential and quiet with low speeds. A few of the streets have bike lanes.



Exhibit 1.10: Barnum Urban Fabric



Barnum Park contains a recreation center, pool, and open space for residents to enjoy.

Wide commercial boulevards form the neighborhood boundary to the east and south.







Barnum was originally a suburb of Denver with limited infrastructure. This began to change when the neighborhood was annexed to Denver in 1896. Only 18% of the houses were built before 1940 (Barnum Community Facts). In 1940 the Denver Ordnance Plant opened nearby, and this led to a housing boom in Barnum as people moved closer to where they worked. The boom continued in the 1950s and today many of the houses date to this era (Denver Public Library).



Exhibit 1.11: Example of Housing Lots in Barnum



Homes in Barnum are average in terms of distance from one another. Generally only the front or back yards are being used but there is little usage of side yards, and the properties are fenced to mark property lines.

Exhibit 1.12: Typical Housing in the Neighborhood



Since Barnum is mainly residential, and more specifically can be described as a low-income neighborhood, the houses in the neighborhood are often rustic in nature and are mostly single story.

The majority of Barnum homes have both front and back yards that are used in various ways. For example, few houses seem to be using them as parking spaces whereas there are houses in which the yards were used as vegetable gardens, which may be a source of income or food for the family.

Exhibit 1.13: Many Yards in Various Stages of Upkeep



The topography of Barnum is flat, with the exception of a few parks and yards.

Exhibit 1.14: A small local market in the central commercial area



Exhibit 1.15: Denver Public Library branch in the central Barnum district



Exhibit 1.16: Playground adjacent to Barnum Recreation Center



Most of Barnum’s commercial or public spaces are located in the central core of the neighborhood. The central core contains the neighborhood’s everyday essentials such as supermarkets and gas stations. It also houses a church and a library at close proximity to each other. Hence, the neighborhood’s commercial activity makes up the core of the neighborhood.

# Part B: Site Assessments

# WINDSHIELD SURVEY

A windshield survey was conducted on October 22, 2019 by driving around Barnum and its adjacent neighborhoods. Team members first drove on Federal Boulevard from the north to the south. The bus stops being evaluated were easily missed because of the speed of the roadway and only a signpost to indicate the locations of the bus stops. Along Federal Boulevard it was observed how wide the street is and the few pedestrians walking on the sidewalks. There are many used car sellers and some other commercial businesses. However, as soon as you drive west into the neighborhood, it becomes predominately single-family homes with few other uses. In the center of the neighborhood, at Knox and 1st Street there are several businesses (gas station, market) surrounded by single-family homes.

South of Barnum on Federal Boulevard has a similar urban form with Federal's wide street design and commercial businesses. Just south of Barnum's boundary are larger developments such as a Walgreens and a Vietnamese business center with various services and restaurants. North of Barnum on Federal, the team drove to the east of Federal on West 4th Ave where there were single-family homes on multiple dead-end streets. The dead-end streets were due to the industrial businesses that surround the 2nd and Bryant Intersection. This urban form was much different than Barnum which does not contain an industrial area.



# EXECUTION AND SAFETY PLAN

## **Observations**

- Night (lighting and safety) – quick windshield survey to assess lighting
- Take pictures
- Day – most of the other observations
- This can be combined with one of the days we complete the intercept surveys
- Spreadsheet
- Take notes

## **Intercept Surveys**

- Groups of two,
- 10 for each group. But be flexible (if there are more than 10 people, survey them)
- Suggestion: one person talk, the other take notes
- Determine Ridership levels – RTD website
- Probably Peak-use – morning and afternoon
- Look for places to hang out or sit
- Know the bus times
- Weekday and Weekend

## **2-3 Field Visits**

- 1 Field Visit at Night      Another on the Weekday Morning or afternoon? Base it on ridership levels
- Third on the Weekend – what time of day
- Half the team does observations while other half is doing intercept surveys.

## **Challenges / Factors to consider**

- No Transit Riders are present
- Plan B – if we don't see anyone, we must go back.
- Limited Spanish skills
- Weather – avoid rainy and snowy days for intercept surveys.
- It would be interesting how rainy days may affect the bus stops – do they get flooded

## **Next Steps**

- Create spreadsheet of each station (entity) and attributes (sidewalk, amenities, etc.)
- Determine time and days to go

Exhibit 2.1: Overview of conditions on Federal Boulevard

Photo Source: Eric DeNardo



PERRY ST

U.S. HIGHWAY 6

13741



13720



FEDERAL BLVD

13824



13807



13788



34440



WEST

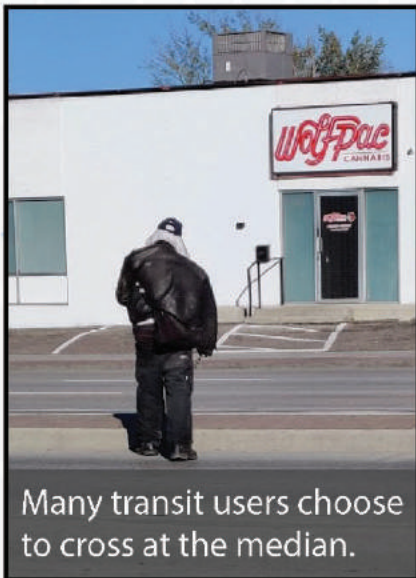


Photo Source: Srishti Murugan

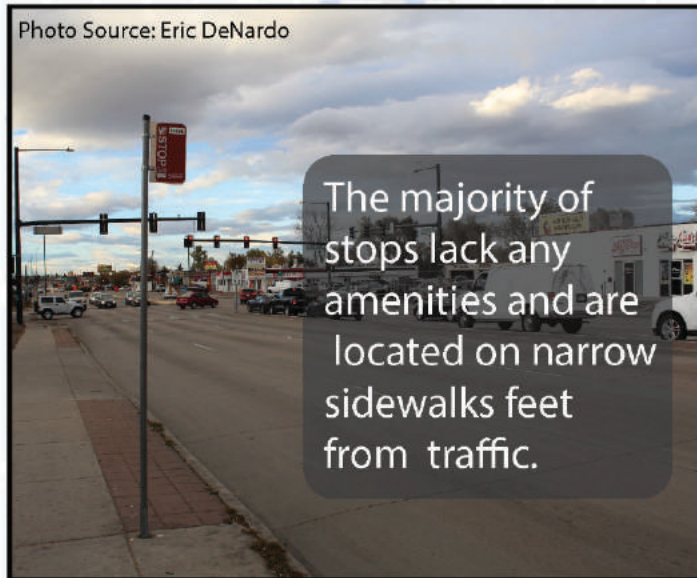


Photo Source: Eric DeNardo



Photo Source: Eric DeNardo



ALAMEDA BLVD

# BUS STOP ASSESSMENTS



To assess each bus stop in Barnum the following attributes were collected: the bus stop ID number (unique identifier of the bus stops), surface surrounding the bus stops, amenities of the bus stops, public art, and nearest crosswalk. Also, a rating was assessed on a 1 (low/bad) through 5 (high/excellent) scale for the following features: physical condition, cleanliness, accessibility for people with disabilities, pedestrian connectivity, safety, and the bus stop in general. Specific reasons why the bus stop may feel unsafe were also collected.

This data was gathered by walking to the bus stop, observing it and its surroundings. To input the data, a mobile-friendly website created by the City and County of Denver and WalkDenver was used with a smartphone. The data was uploaded to the website at the bus stop while notes were taken either electronically or on paper.

## Bus Stop 13741 (#1)

Bus Stop 13741 is the northern most bus stop on Federal in Barnum and has a sign indicating where the bus stop is located, and a concrete



sidewalk underneath as a waiting platform. The bus stop was clean with little trash and surrounded by businesses and parking lots. There is no shelter, bench, or information provided about the bus routes serving the stop. Directly west of the bus stop is Barnum Park, however access to it is indirect. Passengers must walk approximately 300 feet north of the bus stop to access a trail to the park when the park is only 100 feet away. For people with disabilities, including wheelchair users, they must travel over 400 feet to access Barnum Park. Across the street is Barnum East Park where the bus stop is close to a marked crossing located at the

### Exhibit 2.2: Bus Stop #2



intersection of 5th and Federal. The crossing looks ADA accessible and is in good condition. It is assumed passengers use this crosswalk to cross the street to and from the bus stop.

### Bus Stop 13720 (#2)

At Bus Stop #2, there was a lot of trash and leaves on the sidewalk and roadway. Only a pole with a bus stop sign on it is provided with a standard sidewalk giving access to the bus stop. No benches, shelter, or bus information is provided. There are also no crosswalks within proximity of the bus stop. The team observed a pedestrian waiting in the center divider on Federal Boulevard crossing in a non-designated crosswalk. She waited for more than 5 minutes to be able to cross because Federal Blvd had many fast-moving vehicles. The surrounding streets west of Federal had gaps in the sidewalk network that would have linked to Barnum Park and single-family residential homes. The bus stop is surrounded by a parking lot and used car dealership, making it an unpleasant place to wait. There were few people around the stop because of the surrounding uses, making it feel unsafe. No one was observed using this bus stop. Like the other stops, the high volume of traffic on Federal made it unpleasant because of the noise, exhaust, and speeds of the vehicles.

### Bus Stop 13824 (#3)

This bus stop was similar to bus stop #2 because it only had a pole with the bus stop number and no other amenities. This stop had less trash than #2, but still had trash at the area. There were more stores and businesses in the area that made it feel safer because there were more people around. The sidewalk was in good condition and there was a crosswalk close to the stop to cross Federal. The streets to the west of federal also had gaps in the sidewalk, causing connectivity issues for people accessing the bus stop from the neighborhood. Several people were witnessed using this bus stop.

### Exhibit 2.3: Bus Stop #3



### Exhibit 2.4 Bus Stop #4



### Bus Stop 13807 (#4)

This bus stop has a bench, trash can, and cigarette pit. The trashcan is just a bucket and the cigarette pit is a bucket with sand in it. It may be provided by the businesses, such as the liquor store, ice cream shop, or appliance store next to the bus stop. This stop had a lot more people activity compared to bus stops #2 and #3. Pedestrian connectivity of the bus stop was lacking since there was no crosswalk within close proximity. There were a lot of people coming in and out of the liquor store either by car or foot. Several people even approached the interview team unprovoked.

### Exhibit 2.5 Bus Stop #5



### Bus Stop 13788 (#5)

This bus stop was similar to stop #2 and #3, because the only amenities present were a pole with the bus stop number and a streetlight pole. Next to the stop there was a jewelry store and a used-car dealer. The bus stop seemed somewhat unsafe, due to the adjacent barbed fencing protecting vacant land, which did not give it a welcoming feeling. There was a crosswalk close to the stop, which was not being used. Instead, people were seen crossing the using the median. The bus stop had no trash lying around but, was not maintained as there were overgrown bushes and shrubs. No one was witnessed using this stop, and it seemed to be less popular in terms of transit riders.

### Bus Stop 34440 (#6)

This bus stop was the farthest south, and closest to Alameda Avenue; thus, many riders exited to connect with the Alameda line. The team did not witness anyone use this stop in the early after-noon, however it did become relatively busy in the later afternoon hours. The businesses around this stop included a bank and a salon. Again, there were no amenities at this bus stop, other than a pole that had the bus stop number, and a streetlight pole a little away from the stop. There are two crosswalks on either side of the bus stop at close proximity. The surroundings did feel safe, due to the presence of a bigger business like a bank,



Exhibit 2.7: Summary of Stop Assessments

Stops are ordered 1-6 from north to south along southbound Federal Boulevard in Barnum

<p>1. 13741</p> 	<p>OVERALL</p> <p>SAFETY</p> <p>CONDITION</p> <p>CLEANLINESS</p> <p>ACCESSABILITY</p> <p>CONNECTIVITY</p>	<p>2. 13720</p> 	<p>OVERALL</p> <p>SAFETY</p> <p>CONDITION</p> <p>CLEANLINESS</p> <p>ACCESSABILITY</p> <p>CONNECTIVITY</p>
<p>3. 13824</p> 	<p>OVERALL</p> <p>SAFETY</p> <p>CONDITION</p> <p>CLEANLINESS</p> <p>ACCESSABILITY</p> <p>CONNECTIVITY</p>	<p>4. 13807</p> 	<p>OVERALL</p> <p>SAFETY</p> <p>CONDITION</p> <p>CLEANLINESS</p> <p>ACCESSABILITY</p> <p>CONNECTIVITY</p>
<p>5. 13788</p> 	<p>OVERALL</p> <p>SAFETY</p> <p>CONDITION</p> <p>CLEANLINESS</p> <p>ACCESSABILITY</p> <p>CONNECTIVITY</p>	<p>6. 34440</p> 	<p>OVERALL</p> <p>SAFETY</p> <p>CONDITION</p> <p>CLEANLINESS</p> <p>ACCESSABILITY</p> <p>CONNECTIVITY</p>

# INTERCEPT INTERVIEWS

Engaging the public to determine their perception and experience with transit within the Barnum neighborhood is an important part of the site assessment process. In order to gather public input, intercept interviews were conducted with 20 transit users who were actively using the transit system. The interviews were conducted on two different days with the majority of them occurring on a Thursday afternoon from 2:00p.m. – 5:00p.m. Interviews were attempted at all six bus stops along Federal, but the busier



stops were targeted after initial attempts at less popular stops proved fruitless. Each interviewee was asked 17 questions with a mix of multiple choice and short answer question formats. These questions were developed to gather transit usage information, bus stop perceptions, desired amenities and demographic data.

Table 2.1: Question One & Responses

<b>Why are you taking transit today?</b>		
<b>Responses</b>	<b>Count</b>	<b>% of total</b>
No car	3	15%
Commute	11	55%
Errands/Shopping	2	10%
Other	4	20%
<b>Total</b>	<b>20</b>	<b>100%</b>

The intercept interviews provided meaningful insight into who was using the transit system, how often they use transit and why they chose transit over other means of transportation. Table 2.1, above, details the responses to the question “Why are you taking transit today?”. The majority of participants answered that they were either commuting to school or work from home, accounting for 55% of the responses. This is an important aspect of the Barnum transit riders due to a lack of schools and employment within walking distance.

Question two, featured in Table 2.2, showed that most of the interview participants utilized transit on a regular basis with 55% of them riding the bus at least once per day and 30% using transit 2-5 times per week. These responses are within the two highest ridership categories and show that residents are using transit as the primary means of transportation for activities that occur multiple times a week.

Exhibit 2.9: Typical interior street connection to Federal lacking sidewalk access



Table 2.2: Question 2 & Responses

How often do you take transit?		
Responses	Count	% of total
At least once a day	11	55%
2-5 times per week	6	30%
Less than once per week	3	15%
<b>Total</b>	<b>20</b>	<b>100%</b>

Table 2.3: Question 3 & Responses

Why did you choose transit today?		
Responses	Count	% of total
No car access	11	55%
Convenience/ease	7	35%
Cost savings	1	5%
Other	1	5%
<b>Total</b>	<b>20</b>	<b>100%</b>

This pattern of transit utilization is explained further by question three, featured in Table 2.3, in which participants are asked “Why did you choose transit today?”. The two most common responses were no car access with 55% of responses and convenience/ease with 35%. A few participants responded with convenience/ease but added that it was more convenient than asking for a ride from somebody due to their own lack of a car. Anecdotes such as this show that no car access is even more prominent of a cause than the responses indicate.

In order to get to the bus stop, 15 participants walked, accounting for 75% of the responses. Two younger individuals got a ride from their parents and three others transferred buses, accounting for 10% and 15% respectively. This pattern of behavior shows that walking distance from the neighborhood to the bus stops is reasonable and that most people getting on or off at these stops were not transferring buses. Question five, featured in Table 2.4 above, asked participants “Where are you going today?” to which 45% responded “home.” This question and its responses are quite likely to have been impacted by the time of day during

Exhibit 2.10: A pedestrian waits to cross the street

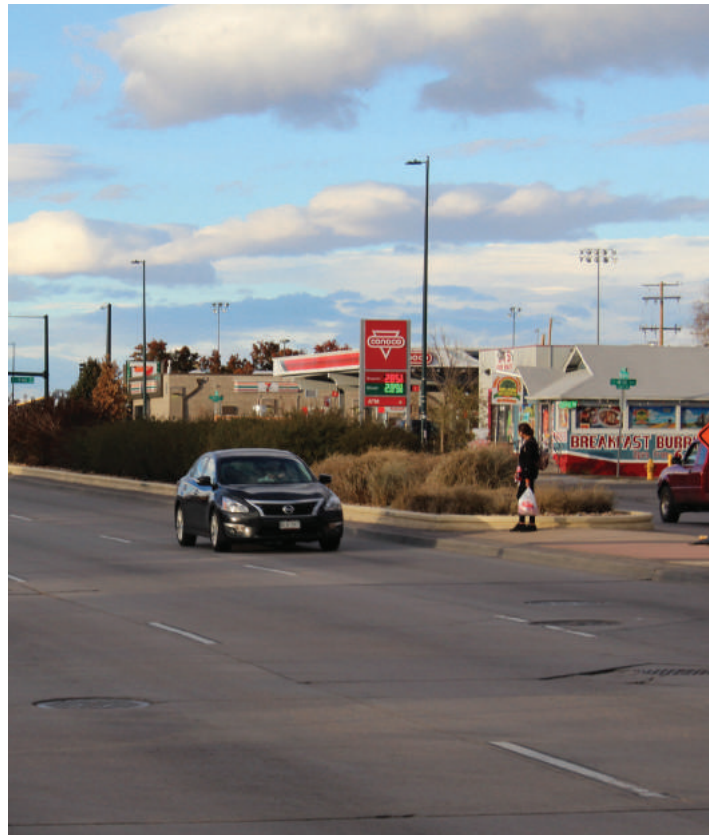


Table 2.4: Question 5 & Responses

<b>Where are you going today?</b>		
<b>Responses</b>	<b>Count</b>	<b>% of total</b>
Home	9	45%
School	4	20%
Medical related	2	10%
Work	3	15%
Other	2	10%

which the interviews were conducted, catching commuters on their return leg home. Table 2.5 details the distance traveled using transit showing that 45% of riders traveled 5-10 miles

and 40% traveled 3-5 miles. This is significant because participants were traveling mid-range distances that were not feasible to walk but also not so long that the transit ride was prohibitive.

Table 2.5: Question 6 & Responses

<b>How far are you going today on transit?</b>		
<b>Responses</b>	<b>Count</b>	<b>% of total</b>
1-3 miles	2	10%
3-5 miles	8	40%
5-10 miles	9	45%
10-20 miles	1	5%
<b>Total</b>	<b>20</b>	<b>100%</b>

## Exhibit 2.11: Question 7 &amp; Responses



Question seven, featured in Exhibit 2.11, and its responses were interesting because participants rated the bus stops higher than expected. According to the team’s assessments, four of the six stops were rated a two with two stops being rated a three. Most of the interviews were conducted at bus stops that were rated a two by the team, yet transit riders frequently rated them as a four or a five, with the average rating being a 3.5. The unexpectedly high ratings show that transit users do not view bus stops lacking amenities as poor and that they value frequency over functionality.

Table 2.6: Question 8 &amp; Responses

What would make this stop better?		
Responses	Count	% of total
Shelter	5	14%
Route maps and schedules	6	16%
Heating	3	8%
Security cameras	2	5%
Better lighting	2	5%
Benches/seating	11	30%
Trash cans	6	16%
Other	2	5%
<b>Total</b>	<b>37</b>	<b>100%</b>

When asked “What would make this bus stop better?” participants selected a variety of different amenities. Summarized in Table 2.6, the most desired addition to the bus stops was benches/seating with 30% of responses, followed by trash cans, route maps/schedules and a shelter.



People were allowed to select more than one amenity to add to the bus stop resulting in 37 responses as opposed to the 20 on all other questions. These responses show that participants preferred the addition of basic amenities such as seating and trash cans as opposed to more costly, premium additions such as heating and security cameras. Security at the bus stop was largely not a concern of riders with only one person saying that they did not feel safe and six more saying that they felt unsafe sometimes, particularly at night. The remaining 13 had no safety concerns.

Table 2.7: Question 11 & Responses

<b>What is your age?</b>		
<b>Responses</b>	<b>Count</b>	<b>% of total</b>
0-19	7	35%
20-29	4	20%
30-39	2	10%
40-49	2	10%
50-59	3	15%
60-69	1	5%
70+	1	5%
<b>Total</b>	<b>20</b>	<b>100%</b>

Table 2.8: Question 12 & Responses

<b>What is your race/ethnicity?</b>		
<b>Responses</b>	<b>Count</b>	<b>% of total</b>
White	4	20%
Hispanic/Latino	11	55%
Native American	1	5%
Other	4	20%
<b>Total</b>	<b>20</b>	<b>100%</b>

Of the 20 participants, there was an almost even split between males and females of eleven and nine respectively. The age of participants, Table 2.7 was largely concentrated in the younger age groups with the most common being ages 0-19, accounting for 35% of the participants. Each age group after 0-19 showed a steady decline. This trend could have been influenced by our survey collection period of 2:00pm – 5:00pm, gathering more high school aged participants than expected. The race or ethnicity of the participants was within the expected distribution according to the neighborhood composition, with the most reported being Hispanic/Latino at 55%.

Table 2.9: Questions 14, 15, 17 &amp; Responses

Responses	Do you live in the neighborhood?		Do you work in the neighborhood?		Do you own a car?	
	Count	% of total	Count	% of total	Count	% of total
Yes	15	75%	4	20%	4	20%
No	5	25%	16	80%	16	80%
<b>Total</b>	<b>20</b>	<b>100%</b>	<b>20</b>	<b>100%</b>	<b>20</b>	<b>100%</b>

The survey concluded with a series of yes or no questions that gleaned information regarding the participants' connection to the neighborhood via home or work and if they had a car. The questions regarding home and work were nearly inverse of each other, showing that the participants who lived in the neighborhood more than likely worked outside of the immediate area and vice versa. This could potentially mean that employment within the Barnum neighbor-

hood is not likely to be occupied by the neighborhood residents and that they seek opportunity elsewhere. Conversely, it could be that Barnum residents can walk to their place of employment if they work within Barnum and only those that work outside the neighborhood would utilize transit to get there. Regardless if the participant lived or worked in the Barnum neighborhood, 80% of them did not own a car and transit was their primary means of transportation.



# METHODOLOGY REFLECTION

The intercept interviews were conducted over two weekday afternoons between 2:00p.m. and 5:00p.m. The initial windshield survey proved effective in identifying the likeliest stops for interviews, as well as for coordinating the logistics of travel to the site. The team was split into two pairs and stationed at the two busiest stops to intercept more riders. There was debate over whether to spread out and cover more ground or to concentrate at the busiest stops, and ultimately the latter strategy proved more effective. Initially, the team found it helpful to have both interviewers talk to the interviewee, as the second team member could continue to engage the rider while their answers were recorded. This practice was continued during the slower times, but as the stops became busier later in the afternoon it became more effective to engage in one-on-one interviews to canvas more of the riders. Overall the methodology plan was largely successful although there were little things changed based on practical experience in the field. These largely centered on the best way to intercept and engage riders, based on location to the stop, body language, and opening statements. Given more time, the team would conduct additional interviews on mornings and weekends to survey a broader section of the neighborhood.

# Part C: Gaps and Recommendations

# Transit & Pedestrian Infrastructure Gaps

## *Existing Gaps*

### Trash

Of the six bus stops in the study area, only one of them contains a trash can. This is evident as there is trash littered around all the stops. This gives an immediate impression of neglect and tells the transit rider they are not a priority on the street.

### Narrow Sidewalks

At multiple places the sidewalk narrows significantly, and nowhere is there a curb divider between the sidewalk and the street. A couple stops are sandwiched between the road and barbed wire fence. To remain at the stop, the rider is confined to mere feet between the two, with nowhere to go.

### Exhibit 3.1: Sidewalk overgrown with Vegetation



### Unpaved Walks

In places there is no paved sidewalk at all, only informal pedestrian trails. This frequently occurs on the blocks west of Federal, connecting it with the rest of Barnum.

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## *Missing Infrastructure Gaps*

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### Crosswalks

Crosswalks were not present near bus stops 13741 (#1), 13720 (#2), 13824 (#3) and 13788 (#5). However, a crosswalk does exist at the intersection of Federal Boulevard and Alameda Ave. close to bus stop #6. This crosswalk helps pedestrians who are crossing over to the adjacent side to access services, restaurants, or a bus transfer. but since the number of crosswalks is less between this stretch, and the distance between the existing crosswalks are longer to cover, pedestrians are often seen crossing over at any random point, which sometimes obstructs the traffic flow, and is also highly dangerous due to crossing without any indication.

### Sidewalks

Sidewalks throughout Barnum lack safety for pedestrians walking or waiting for their bus. The sidewalks are not well separated from traffic. There are no safety elements like landing pads to assist with entering or exiting the bus. The sidewalks are poorly maintained, with unruly plants which need to be trimmed, absence of trash cans which has resulted in littering of the surroundings, and low curb height which is dangerous as there is no much separation from the motorized traffic.

### Curb Ramps

There are no curb ramps located particularly at bus-stops, which will make it hard for a handicap rider to use the sidewalks and board the bus. There were curb ramps seen at very few locations along the sidewalks, but nothing particularly for the bus-stops. The sidewalks are not designed ADA designed.

### Shelter

All the six bus stops along Federal Boulevard lacked shelters which would be useful to protect the riders waiting for their bus to arrive from wind and rain. The lack of shelters give transit riders a poor experience while waiting for their bus.

### Benches

Of all the six bus stops, bus stop #3 (13824) was the only one that had a bench present, whereas all the others had no seating present. The lack of benches sometimes makes it hard for riders who are older, and prefer a surface to sit and wait for their bus to arrive.

### Trash Cans

Except for bus stop #3 (13824) which has trash cans present, all the other bus-stops lack trash cans. As a result, there is a lot of litter present around bus-stops which creates an unpleasant environment to wait at for a bus.

### Lighting

Distribution of street lights are not based on the bus-stop locations, or there are no specific lights only for bus stops. Due to this reason, riders at bus-stops said they feel unsafe during night hours, due to lack of lighting at stops.

### Exhibit 3.2: Bus Stop with no Basic Amenities



### Bus Route Information

Apart from a board depicting the bus stop number at each stop, there is no additional information about routes and schedule of buses present. Considering the high percentage of Hispanic population, it makes it hard for them to get additional information about buses.

## *Transit Rider Experience*

Exhibit 3.3: Lack of Maintenance



The predominant impression the transit rider on Federal Boulevard is that of neglect. The majority of bus stops are not well maintained. There is frequently trash littered around the bus stops and weeds coming through the cement. The sidewalk between the stops is often broken and uneven. Waiting at the stops themselves can also be unpleasant. The majority of stops are located feet from traffic with no curb divider. Riders are forced to stand feet from Federal Boulevard, where three lanes of traffic rush by at 40 miles per hour. Multiple studies have shown that speeds 40 MPH and up are very dangerous for pedestrians. Crosswalks across Federal are infrequent and many pedestrians choose to

run to the narrow median in the center of the street. Multiple stops are located next to vacant lots or barbed wire fences. These stops feel neglected and it does not seem as though there are “eyes on the street” were something to happen. A number of riders commented that they felt mostly safe during the day but that this was not the case after dark. This is understandable given the relative isolation of the bus stops, as well as the fact that most lack adequate street lighting. Altogether then, the transit experience on Federal Boulevard in Barnum currently feels like an afterthought. The deficient infrastructure clearly shows it is not a priority for the city. When interviewed, many riders seemed surprised that any improvements were being considered, perhaps because their expectations have been set so low through experience. Riders wait for their bus feet from traffic, enduring the associated noise and pollution. The design is wholly given over to maximize the convenience for car drivers. There are some solutions which help with this imbalance.



Exhibit 3.4: Transit and Pedestrian Gaps

# Transit and Pedestrian Gaps

## Existing Gaps

- Sidewalk Conditions
- Safe Crosswalks on Federal Blvd.



## Rider Experience

- High Speeds
- Close Proximity to Traffic
- Poor Maintenance of Bus Stops
- Feels unsafe with lack of Lighting

## Missing Gaps

- Shelters
- Benches
- Transit Information
- Trash Cans
- Sidewalks
- Crosswalks
- ADA Curb Ramps
- Lighting



# Transit & Pedestrian Infrastructure Recommendations

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## *Macro Recommendations*

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In order to address the gaps that were previously identified in the Barnum Neighborhood, potential macro solutions have been identified. Macro recommendations are larger in scale than micro recommendations and they can be applied to the area as a whole, rather than specific sites. The macro recommendations that are suggested range in cost and feasibility, with the least costly solutions tending to be the most feasible or practical. In the absence of financial or political constraints, the more costly recommendations would have the greatest impact and benefit.

The most impactful and costly recommendation that has been identified for the Barnum Neighborhood is the complete redesign of Federal Boulevard. There are many issues with the current design of Federal and how it

impacts the community such as unsafe speeds, lack of shoulders, lack of bike lanes, insufficient crosswalks, and deficient ADA accessibility. In order to properly address all of these concerns, it is recommended that the entire Federal corridor be redesigned to improve safety and functionality for all modes of transportation. In lieu of a complete redesign, completing a “road diet” of Federal Boulevard is another effective way of addressing safety and multi-modal transportation options. It appears that Federal is designed to accommodate a larger amount of traffic than it currently experiences. A road diet is the process of reallocating the existing configuration of lanes in order to create shoulders and bike lanes within the existing right of way. There currently are three lanes of traffic in each direction, and the road diet solution would reduce that to two lanes, using the third lane to create a shoulder, a bike

lane, or both. There is also the possibility of reducing the width of the large central median that currently takes up about the same space as a lane of traffic.

The current configuration of bus stops along Federal is another area where a macro solution is applicable. Currently there are six bus stops within Barnum and the siting of them appears to be inefficient or problematic. There are several bus stops that are under utilized but according to interviews, would have higher usage if safety or accessibility concerns were addressed. Many times, riders avoid the bus stop that is closest in proximity to their destination because they feel unsafe or they need to cross the street and the nearest crosswalk is closer to another stop. Reassessing the sites for all bus stops in the Barnum neighborhood would increase efficiency and ridership by addressing safety and accessibility concerns.

Sidewalk conditions throughout the neighborhood are problematic, in terms of maintenance and cleanliness. In order to address these conditions, it is recommended the City take ownership of the private sidewalks in order to provide properly maintained sidewalks that are regularly cleared of debris and refuse. In the

likely event that ownership of the sidewalks does not transfer to the city, a maintenance and cleaning program should be implemented by the community or other responsible parties to address the problematic conditions for pedestrians along Federal. Another feature of the sidewalks that is deficient across the entire system is ADA accessibility, and it is recommended that all sidewalks be modified to meet ADA accessibility requirements.

### Exhibit 3.5: Current Sidewalk Conditions



## *Micro Recommendations*

After considering the gaps, demographics, surveys, and the team’s observations, the team proposes the following specific recommendations along the Federal corridor in the Barnum neighborhood: crosswalks on Federal, bus stop #6 relocation, upgrading bus stop amenities, and adding sidewalks to neighborhood streets.

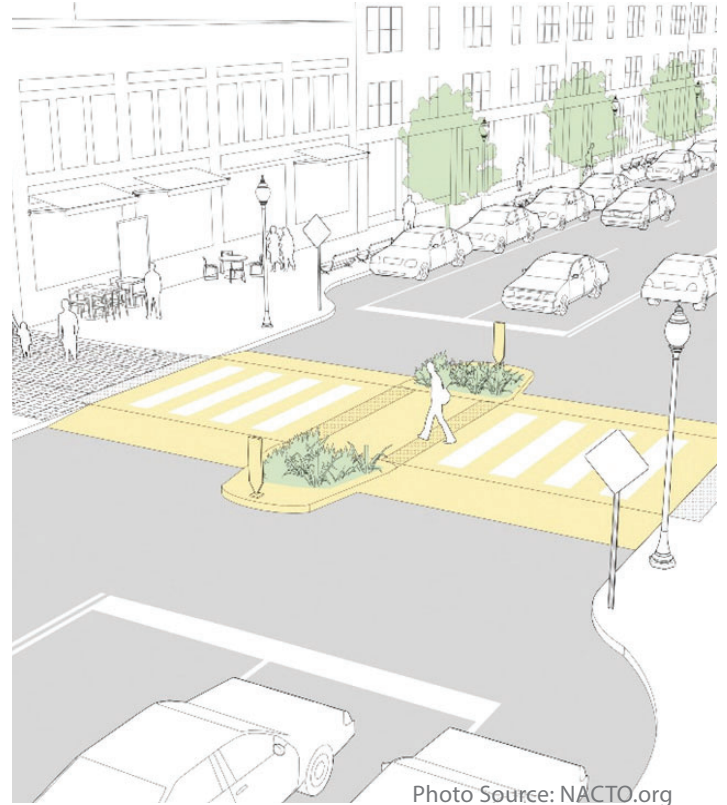
### Crosswalks at Bus Stops 2, 3, 4 and 5

The team proposes crosswalks be constructed on Federal Blvd near bus stops 2, 3, 4 and 5 to provide safer access for bus riders to cross Federal. All these bus stops would require a crossing similar to a mid-block crossing as shown in Figure 3.6. These crosswalks will be equipped with bulb-outs and center waiting areas to reduce the length pedestrians must cross Federal Blvd. Because of the high speeds and traffic of Federal, the team also proposes to put flashing beacons or signs to yield to pedestrians.

### Bus Stop #6 Relocation

Another specific recommendation is for bus stop #6 to be moved closer to Alameda street.

Exhibit 3.6: Mid-Block Crossing Design



Currently, it’s over 300 feet away from Alameda Avenue which requires riders to run to their connections to bus lines on Alameda. This gives riders a seamless connection to their bus routes, while also speeding up bus times. Currently, a bus stop is located after the Alameda intersection, which riders must wait to cross the street to transfer to their bus going eastbound. We suggest consolidating these bus stops to reduce travel time and increase speeds.

### Upgrade Bus Stop Amenities

All the bus stops require upgrading amenities to include shelters, transit information, trash cans, and benches to provide a comfortable environment for riders (Exhibit 3.7). The team proposes that all the information provided is also translated in Spanish because of the demographics of the neighborhood, and many of the people surveyed only spoke Spanish. Trash cans are necessary because of a lot of trash around the bus stops.

### Exhibit 3.7: Bus Stop Example in Denver



Photo Source: DenverUrbanism.com

### Exhibit 3.8 Potential Sidewalk Leading to Federal Blvd



### Add Sidewalks on Neighborhood Streets

Lastly, the team recommends adding sidewalks to all the street faces that lack sidewalks within two blocks of Federal Boulevard. An example of a new proposed sidewalk is shown in Figure 3.8. The lack of sidewalks is a barrier for transit riders, especially riders with disabilities, to access their bus stops. This will also increase safety of pedestrians walking to and from their bus stops.

Exhibit 3.9: Pedestrian and Transit Recommendations

# RECOMMENDATIONS

## Micro Recommendations

Crosswalks to be added near bus stops- 2,3,4,5



Upgrade bus stop amenities

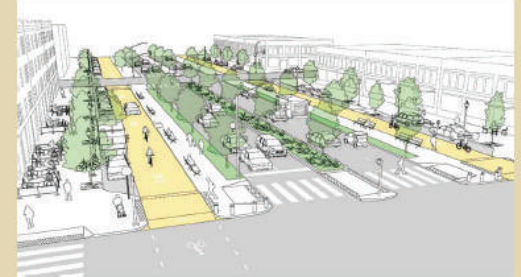


Add sidewalks to neighborhood streets



## Macro Recommendations

Redesign Federal Blvd "Road Diet"



Reconfigure bus stop locations



Maintenance and cleaning along Federal Blvd





# CONCLUSION

While Barnum faces a lot of challenges in the current transportation infrastructure, there is also a lot of opportunity. There is a strong sense of community in the neighborhood and many local businesses along Federal Boulevard. Barnum residents express a desire to improve the transit experience and pedestrian infrastructure. As outlined, there are a number of specific changes the city can make to begin this process; building towards the larger goal of a revitalized Federal Boulevard that aligns with the goals of Vision Zero and multi-modal transportation corridors.

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Unless Otherwise Cited, photos sources courtesy of Srishti Murugan and Eric DeNardo

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