Chapter VII

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CHAPTER VII

Route-Level Alternative Analysis

INTRODUCTION

This chapter examines potential route-level alternatives that have been developed for Red Apple Transit. These alternatives are meant to portray options that can be implemented by Red Apple Transit as additions to the current regional and local systems. For each alternative, information is provided on ridership estimates, performance, cost, and required vehicles. All of the alternatives in this chapter are conceptual, with modifications expected as the study and public input process continues.

ALTERNATIVES

Alternative 1 – Demand-Responsive Services

The first option discussed in this chapter is to begin operating demand-responsive services in the communities of Kirtland, Bloomfield, and Aztec. These are fast-growing areas that have transit needs but may not be ready to support fixed-route services. Having general public demand-responsive services will allow each of these communities to provide a high level of service to their residents. Figure VII-1 shows the demand-response zones which are constrained to the town boundaries of each of the three municipalities. Table VII-1 at the end of the chapter provides a comparison of the service statistics for each of the three zones.

The timing for implementation of any of these services would be determined by the readiness of these cities (Aztec, Bloomfield) and unincorporated areas (Kirtland, San Juan County) to provide the local match required to obtain additional federal operating funds. Although not shown in Figure VII-1, demand-response service areas could also be established in other unincorporated areas of San Juan County such as Crouch Mesa, Wildhorse Valley, and Flora Vista.

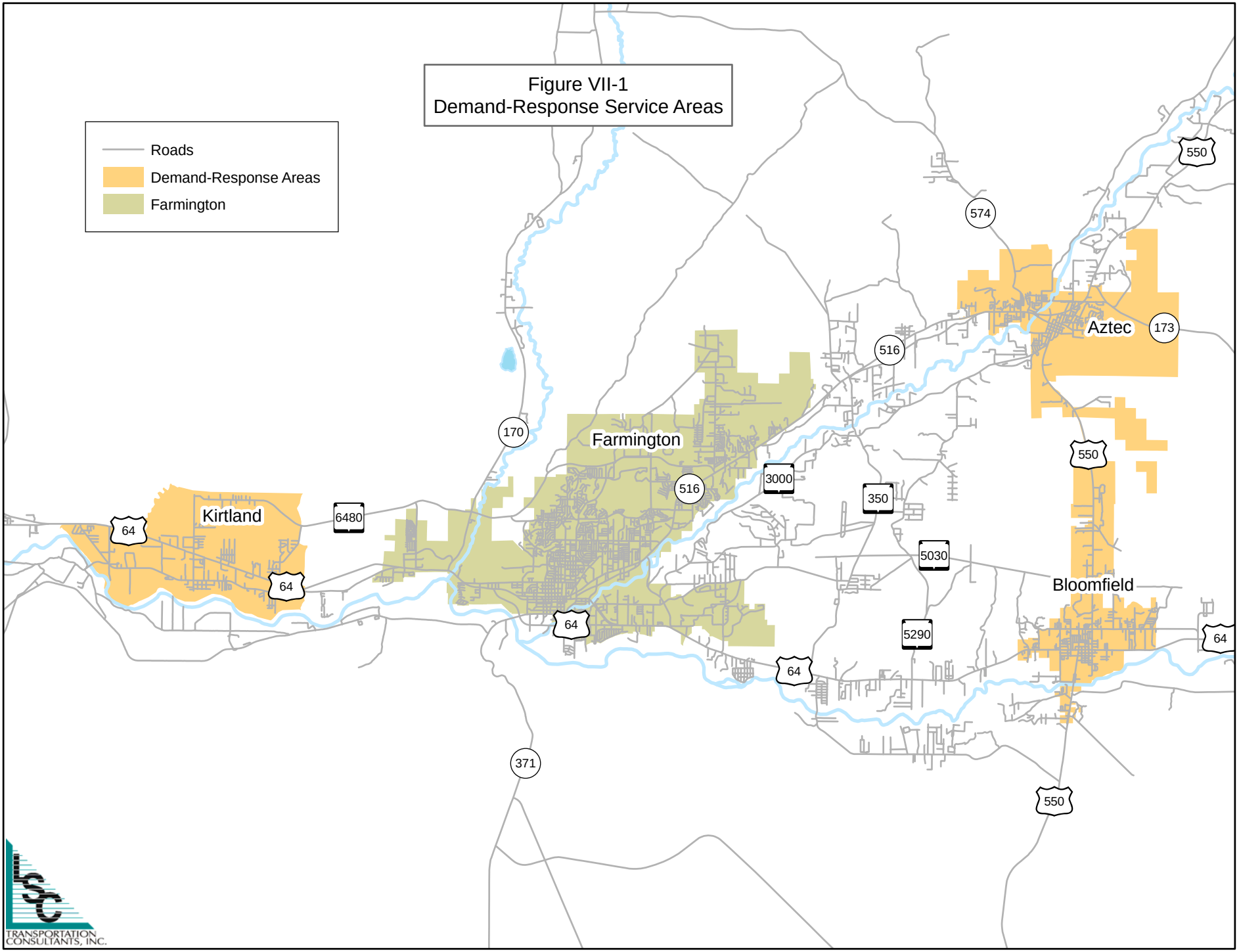
Figure VII-1
Demand-Response Service Areas
Roads
Demand-Response Areas
Farmington
Kirtland
Farmington
Aztec
Bloomfield
64
6480
170
516
3000
350
5030
5290
574
550
173
371
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As each of the options is projected to use just one vehicle for the time being, the response times were used to estimate ridership. The Kirtland zone is projected to have slightly lower ridership than that of Bloomfield or Aztec due to the response times required to cover the geography with a single vehicle. Below are the operating statistics for each of the three zones.

Aztec

- Vehicles Required: One
- Annual Riders: 9,059
- Annual Revenue-Miles: 26,840
- Annual Revenue-Hours: 3,355
- Annual Operating Costs: $95,926
- Riders/Hour: 2.7
- Riders/Mile: 0.3
- Cost/Passenger: $10.59
- Response Time: 12 minutes

Bloomfield

- Vehicles Required: One
- Annual Riders: 8,388
- Annual Revenue-Miles: 33,550
- Annual Revenue-Hours: 3,355
- Annual Operating Costs: $99,090
- Riders/Hour: 2.5
- Riders/Mile: 0.3
- Cost/Passenger: $11.81
- Response Time: 15 minutes

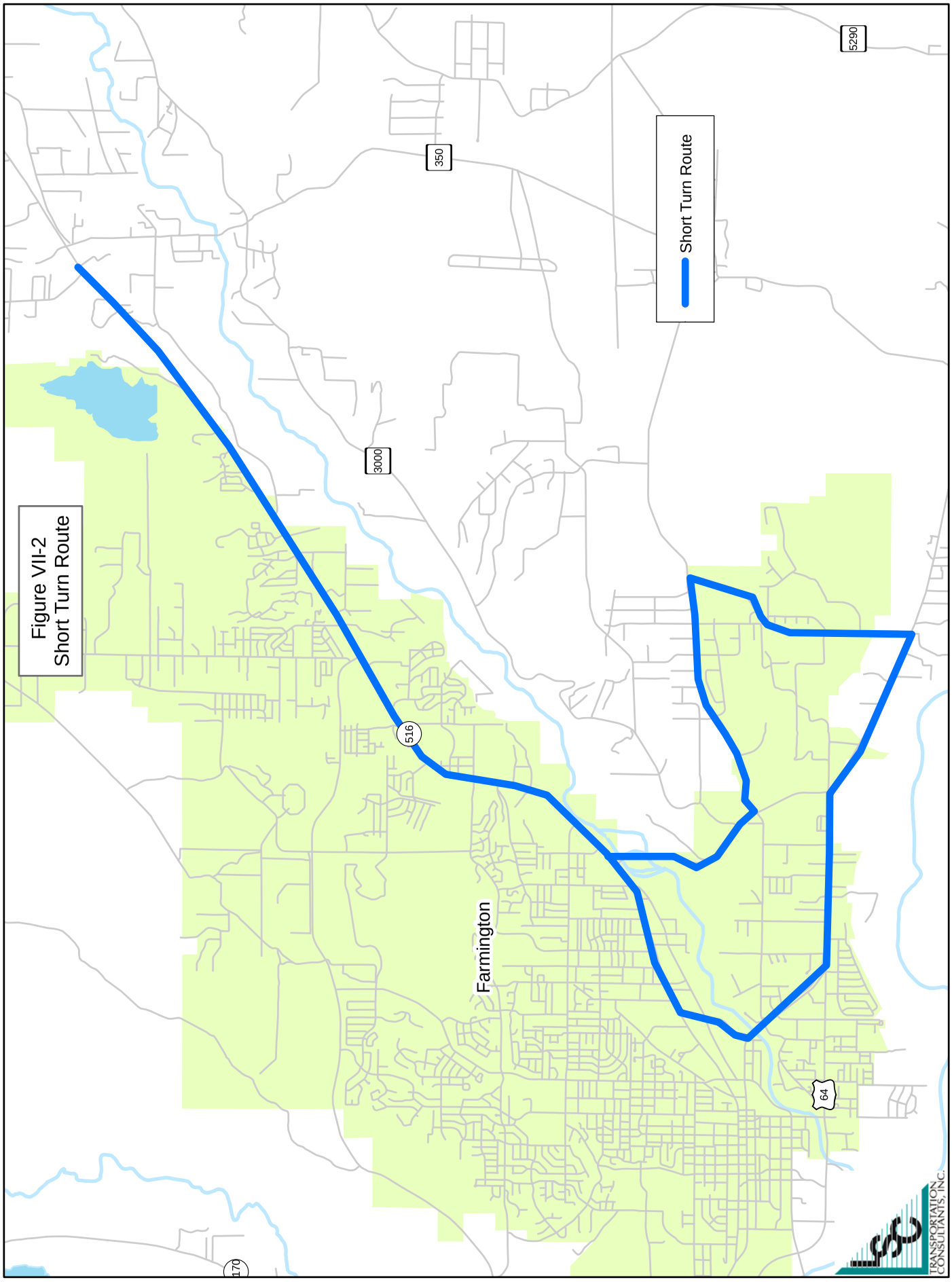
Kirtland

- Vehicles Required: One
- Annual Riders: 6,710
- Annual Revenue-Miles: 39,650
- Annual Revenue-Hours: 3,355
- Annual Operating Costs: $101,992
- Riders/Hour: 2.0
- Riders/Mile: 0.2
- Cost/Passenger: $15.20
- Response Time: 18 minutes

Alternative 2 – Regional Short Turn

The regional short turn route was developed to provide service within the region all day. This option covers some of the most frequent stops along some of the other routes that are served only at peak periods including the Flora Vista Circle K. Figure VII-2 shows this option at the route level. Implementing this option, along with the current regional route structure at peak periods, provides the opportunity for local residents to access important regional locations throughout the day. The operating statistics for this route are summarized below and provided in detail in the summary table at the end of the chapter.

- Vehicles Required: One
- Annual Riders: 17,080
- Annual Revenue-Miles: 80,520
- Annual Revenue-Hours: 3,355
- Annual Operating Costs: $121,326
- Riders/Hour: 5.1
- Riders/Mile: 0.2
- Cost/Passenger: $7.10


Short Turn Route
Figure VII-2
Short Turn Route
Farmington
5290
350
3000
516
64
170

Alternative 3 – Aztec-Bloomfield Route

The Aztec-Bloomfield route was developed to allow users to travel between the two locations without having to go through Farmington. This option connects both locations directly, allowing users to travel easily between the locations. This option is shown in Figure VII-3. However, two service options were explored with regard to this proposed route. The first option operates the route only during the peak periods, similar to the current regional route structure. The second option looks at providing the service all day long. Both of these options have intrinsic advantages for the rider or the transit agency. Providing service at the peak periods might be the most cost effective means of providing this service because ridership is rarely evenly distributed throughout the day. The all-day option, however, provides a high level of service for the rider, providing more travel choice. The operating statistics for both of these options are summarized below.

Peak Service

- Vehicles Required: One
- Annual Riders: 6,710
- Annual Revenue-Miles: 16,542
- Annual Revenue-Hours: 915
- Annual Operating Costs: $30,519
- Riders/Hour: 7.3
- Riders/Mile: 0.4
- Cost/Passenger: $4.55

All-Day Service

- Vehicles Required: One
- Annual Riders: 11,590
- Annual Revenue-Miles: 60,726
- Annual Revenue-Hours: 13,355
- Annual Operating Costs: $111,903
- Riders/Hour: 3.5
- Riders/Mile: 0.2
- Cost/Passenger: $9.66

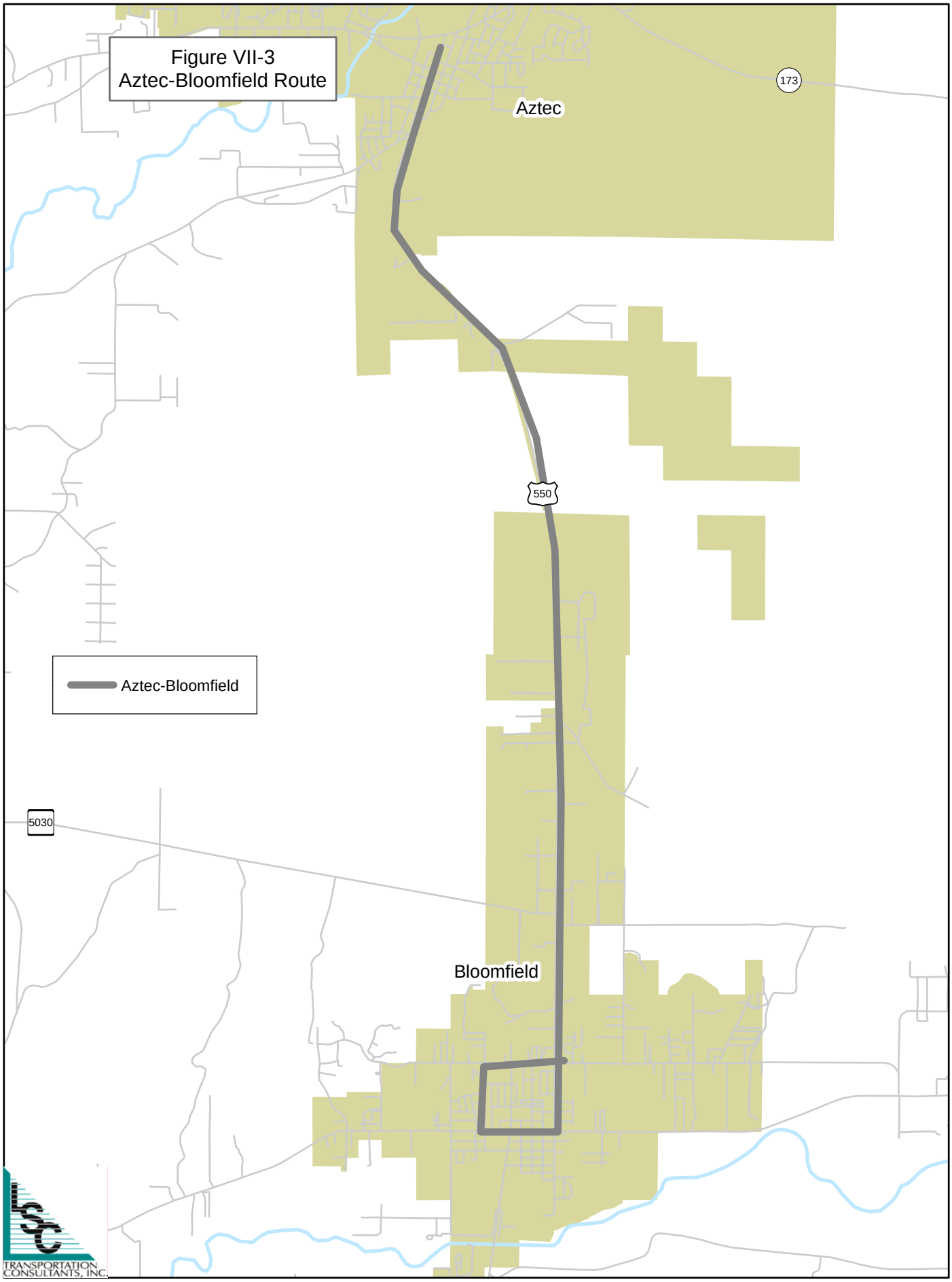


Figure VII-3
Aztec-Bloomfield Route
Aztec
173
550
Aztec-Bloomfield
5030
Bloomfield
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Alternative 4 – Downtown Trunk Route

The downtown trunk route seeks to connect the current major transfer points while providing circulator service throughout the core area. This route can be operated with a 30-minute headway as it is less than six miles. One of the major advantages of this route is that it provides users a way to move throughout the core urban area of Farmington without having to rely on the other routes, potentially accessing new riders. Figure VII-4 shows this route in detail. The route also serves a good portion of 20th Street, a primary retail and shopping corridor. The main challenge regarding this route is attempting to match the timings well with the current route structure within the city of Farmington. The operating statistics for both of these options is summarized below.

Peak Service

- Vehicles Required: One
- Annual Riders: 21,960
- Annual Revenue-Miles: 37,576
- Annual Revenue-Hours: 3,355
- Annual Operating Costs: $100,988
- Riders/Hour: 6.5
- Riders/Mile: 0.6
- Cost/Passenger: $4.60

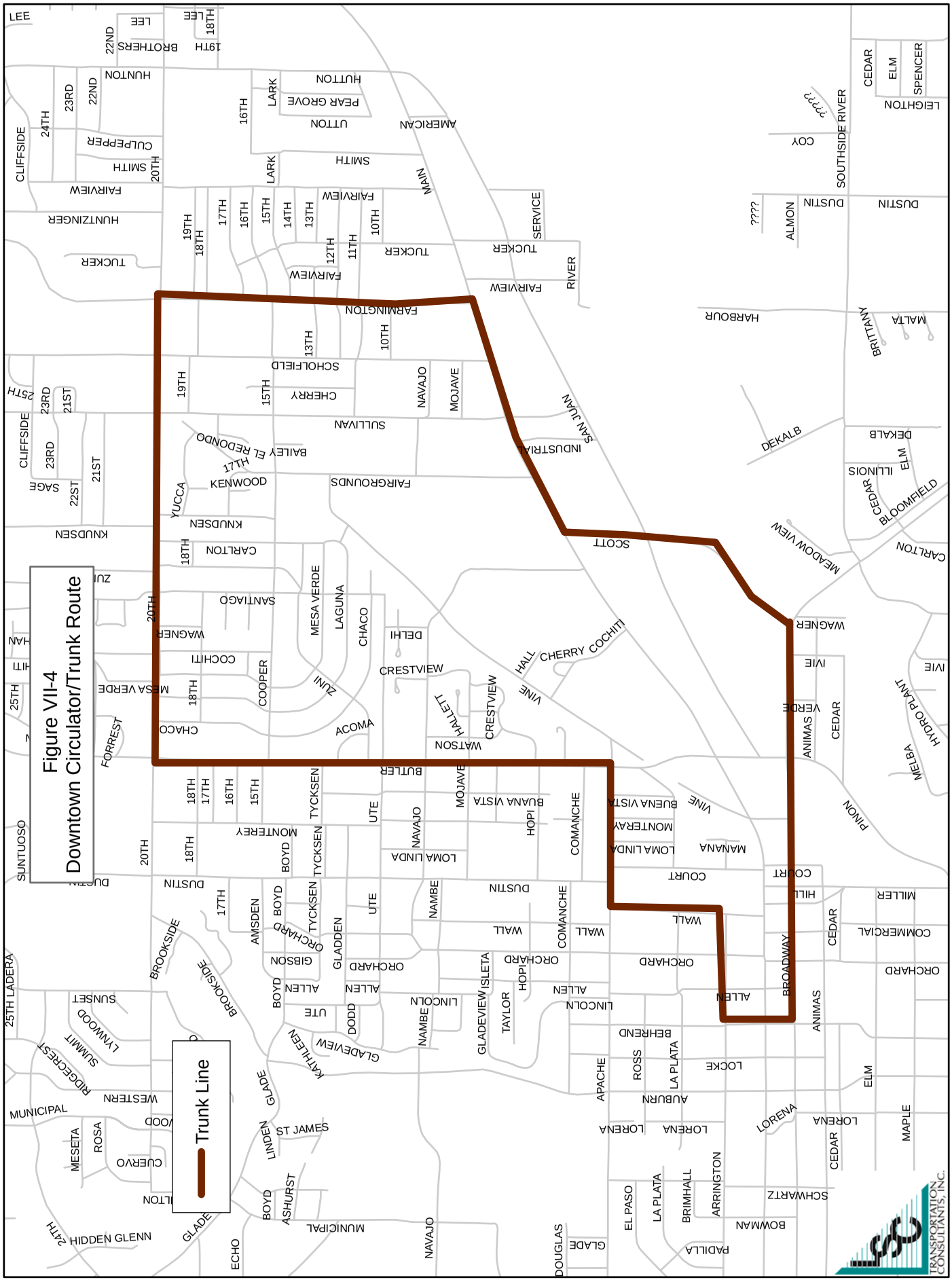
Figure VII-4
Downtown Circulator/Trunk Route
Trunk Line

ADDITION OF BUS STOPS

The placement of bus stops is critical in ensuring that the community's transit needs are being met. Having limited bus stops means that users may have to travel farther to access the service, while placing them too close together could slow down run times. It is generally held that users have access to transit if they are within one-quarter mile of a transit route. As such, if bus stops are spaced one-quarter to one-half mile, users have the opportunity to board at convenient intervals. Figure VII-5 shows a map that displays the one-quarter-mile buffer for the current routes and stops for Red Apple Transit.

As depicted by the map, there are numerous locations in the system that would require users to walk great distances either to or from the bus. For example, there is a large stretch of the Red route between the SSI office and the 28th/ Crescent stop. Having a gap this large makes it very inconvenient for a rider living between the stops to use the service as they would be required to walk a considerable distance to reach the bus stop. This is especially important when considering disabled and elderly riders who may have ambulatory limitations. The addition of more stops will not have a significant impact on the run time of routes because the majority of individuals will simply be moving their location of access and egress to the location that is most convenient for them.

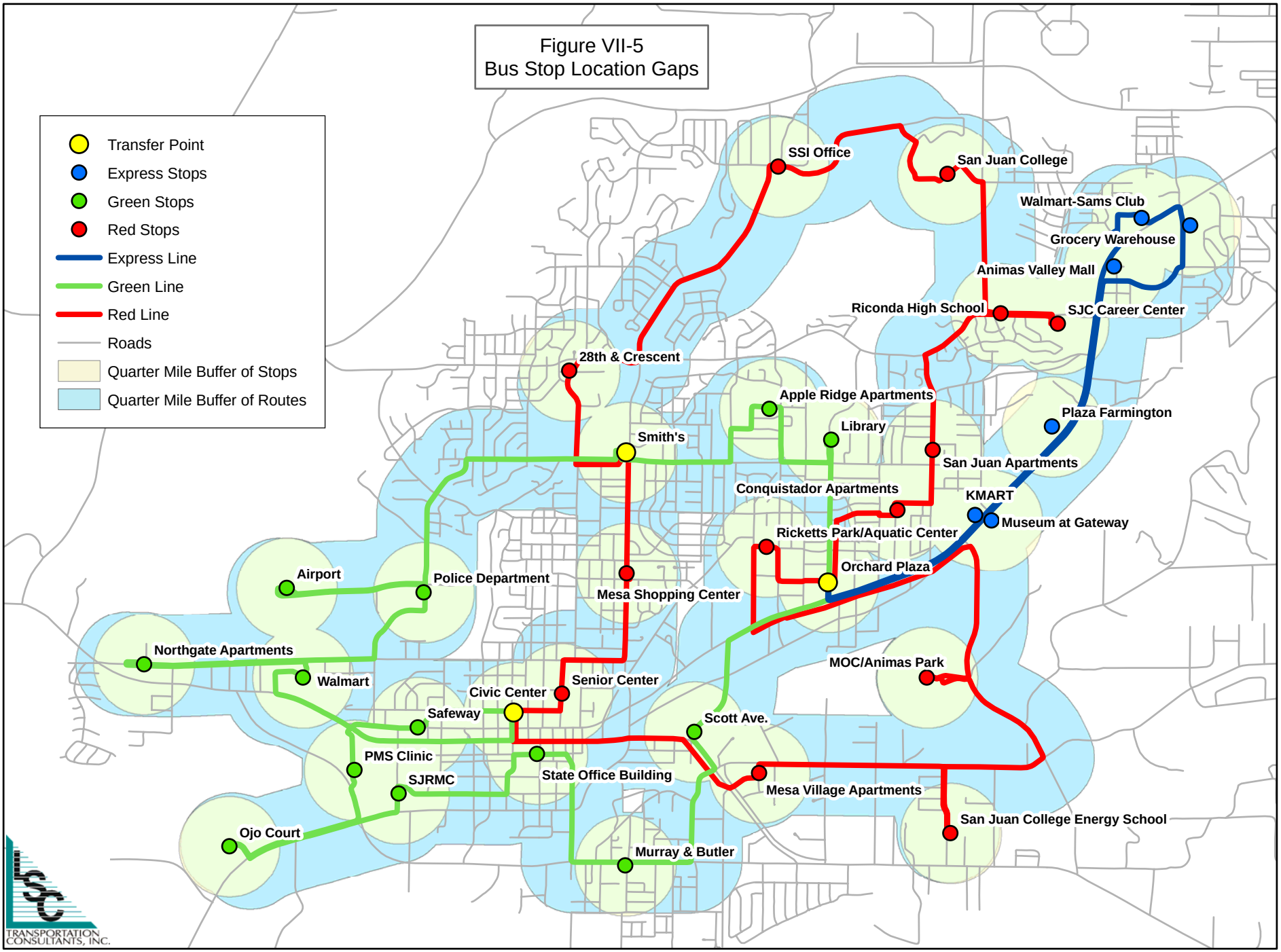
Figure VII-5
Bus Stop Location Gaps
Transfer Point
Express Stops
Green Stops
Red Stops
Express Line
Green Line
Red Line
Roads
Quarter Mile Buffer of Stops
Quarter Mile Buffer of Routes
SSI Office
San Juan College
Walmart-Sams Club
Grocery Warehouse
Animas Valley Mall
Riconda High School
SJC Career Center
28th & Crescent
Apple Ridge Apartments
Plaza Farmington
Library
Smith's
San Juan Apartments
Conquistador Apartments
KMART
Museum at Gateway
Ricketts Park/Aquatic Center
Orchard Plaza
Airport
Police Department
Mesa Shopping Center
Northgate Apartments
MOC/Animas Park
Walmart
Senior Center
Civic Center
Safeway
Scott Ave.
PMS Clinic
State Office Building
SJRMC
Mesa Village Apartments
San Juan College Energy School
Ojo Court
Murray & Butler
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Table VII-1
Route-Level Alternatives

Alternative	Vehicles Required	Projected Annual Riders	Daily Revenue-Miles	Daily Revenue-Hours	Annual Revenue-Miles	Annual Revenue-Hours	Annual Operating Cost	Riders/ Hour	Riders/ Mile	Cost/ Rider
Aztec Demand-Responsive	1	9,059	88	11	26,840	3,355	$95,926	2.7	0.3	$10.59
Bloomfield Demand-Responsive	1	8,388	110	11	33,550	3,355	$99,090	2.5	0.3	$11.81
Kirtland Demand-Responsive	1	6,710	130	11	39,650	3,355	$101,966	2.0	0.2	$15.20
Regional Short Turn	1	17,080	264	11	80,520	3,355	$121,236	5.1	0.2	$7.10
Aztec-Bloomfield Peak	1	6,710	54.3	3	16,562	915	$30,519	7.3	0.4	$4.55
Aztec-Bloomfield All Day	1	11,590	199.1	11	60,726	3,355	$111,903	3.5	0.2	$9.66
Downtown Trunk Route	1	21,960	123.2	11	37,576	3,355	$100,988	6.5	0.6	$4.60