

Appendix A On-Board Survey Results



ON-BOARD SURVEY RESULTS

Date: September 5, 2019 Project #: 22857
 To: Cascades East Transit Master Plan, Project Management Team
 From: Oren Eshel, Layne Wyse, and Baxter Shandobil, Nelson\Nygaard
 Subject: CET On-Board Survey Results

TABLE OF CONTENTS

Introduction.....1
 On-Board Survey Results Analysis2
 Surveys Completed by Route 2
 Surveys Completed by Time of Day 3
 Trip Purpose..... 4
 Frequency of Use 6
 Number of Years Riding CET..... 6
 Transfers Between Routes 7
 Transit Access 11
 Fare Type and Discounts 16
 Alternatives to CET Service 19
 Customer Perceptions of Current CET Service 21
 Improvement Priorities 23
 Rider Feedback..... 26
 Demographics of CET Riders 29

INTRODUCTION

This memo summarizes the results of the on-board surveys conducted on the CET Fixed-Route System in Bend and the regional Community Connector system between May 8 and June 3, 2019. The following list highlights participation and results of the surveys:

- ▶ 413 riders participated in the on-board survey: 277 fixed-route and 136 Community Connector participants
 - ▶ Largest number of on-board respondents participated between 2 and 3 p.m.

- ▶ 65% of CET riders reported utilizing multiple routes to complete their trip
- ▶ CET riders most often access the bus on foot
- ▶ One-third of riders paid fares in cash; TouchPass mobile app usage is low (3%) system-wide
- ▶ 30% of riders system-wide would forgo a trip altogether if CET service was not available
- ▶ 80% of CET's riders are satisfied with the overall service
- ▶ Majority of riders are white
- ▶ Largest cohort of Bend fixed-route riders are aged 25 to 34; 42% of Community Connector riders are 18 and younger (83% of these riders are students); only approximately 10% of riders are 65 or older.
- ▶ A majority of Bend fixed-route riders are employed and a large percentage of Community Connector are students (37%)
- ▶ Most riders on both Bend fixed-routes (45%) and Community Connector routes (44%) report household earnings of under \$12,000 per year

ON-BOARD SURVEY RESULTS ANALYSIS

This section summarizes the results of the on-board survey conducted on the CET Fixed-Route System in Bend and the regional Community Connector system between May 8 and June 3, 2019; copies of the surveys are attached to this memo. The survey provides CET with an assessment of how well existing services meet rider needs, gaps or limiting factors in the existing service, and the infrastructure or service needs from the rider perspective. Where relevant, the results are shown overall and for riders who completed the survey on a Bend fixed-route bus or a Community Connector bus (many riders use both services).

SURVEYS COMPLETED BY ROUTE

CET received 277 completed surveys on Bend fixed-route buses and 136 completed surveys on Community Connector routes, for a total of 413 responses. Riders were asked to only complete one survey, even if they ride CET service for different trips. Table 1 summarizes the number of responses by route.

Table 1: On-Board Survey Responses by Route

Bend Fixed-Route			Community Connector		
Route	Responses	% of Total	Route	Responses	% of Total
1 - S 3rd St	38	14%	20 - Warm Springs/Madras	21	5%
2 - Brookwood	32	12%	22 - Redmond/Madras	7	2%
3 - Newport	31	11%	24 - Bend/Redmond	60	15%
4 - N 3rd St	46	17%	26 - Redmond/Prineville	9	2%
5 - Wells Acres	26	9%	28 - Redmond/Sisters	17	4%
6 - Reed Market	27	10%	29 - Sisters/Bend	8	2%
7 - Greenwood	44	16%	30 - La Pine/Bend	14	3%
10 - Colorado	14	5%			
11 - Galveston	19	7%			
Bend Total	277	100%	Community Connector Total	136	100%

SURVEYS COMPLETED BY TIME OF DAY

Figure 1 shows the times when rider surveys were completed for both Bend fixed-routes and Community Connector routes, and the percent of total responses. The patterns generally reflect the bus trips on which surveys were distributed, which was intended to capture a representative sampling of CET trips and riders.

Q1: What time did you board the bus you're riding now?

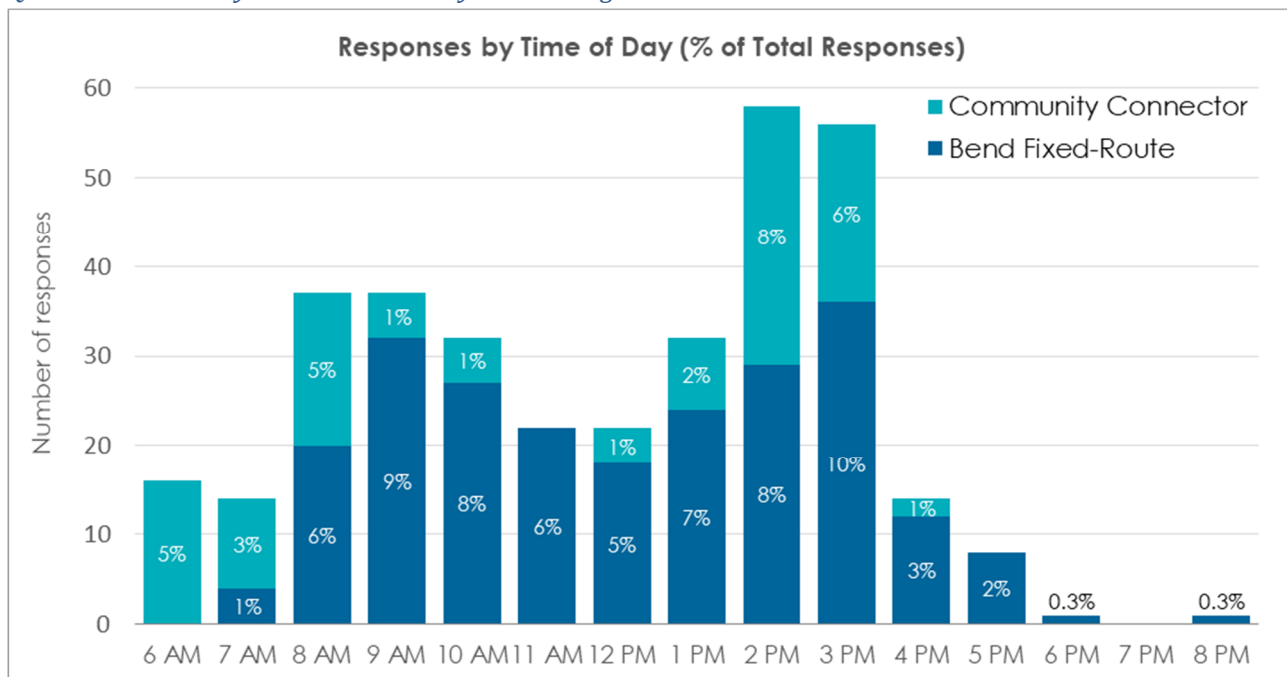


Figure 1: Survey Responses by Time of Day

TRIP PURPOSE

CET riders on both Bend fixed routes and Community Connector routes were asked to identify the primary reason for their trip (Figure 2). Highlights include:

- ▶ **Work is the most common primary trip purpose for riders on Bend fixed-routes (34%)** while 16% of Bend fixed-route riders used the bus to get to school. **On Community Connector routes, 42% of riders said the primary purpose of their trip was to get to school/college, while 23% used the bus to get to work.**
 - ▶ These results are consistent with rider demographics (see Figure 17)—a majority of Bend fixed-route riders (52%) are employed either full or part-time, while a lower percentage (32%) of riders surveyed on Community Connector routes are employed. And 17% of Bend fixed-route riders and 34% of Community Connector riders identified 'Student' for their employment status.
 - ▶ Among Community Connector riders who said that school was the main reason for their trip, the majority (52%) completed surveys on Route 24 - Bend/Redmond.
 - ▶ Of those Bend fixed-route riders traveling to or from school, 36% were surveyed on Route 3 – Newport.
- ▶ **The primary reasons for the other approximately 35% of trips (overall) included shopping, library, and errands; recreation and social visits; medical appointments; and social services.**

Q8: What is the primary purpose of this trip? Overall Responses: 407 (Bend Fixed-Route: 274, Community Connector: 133)

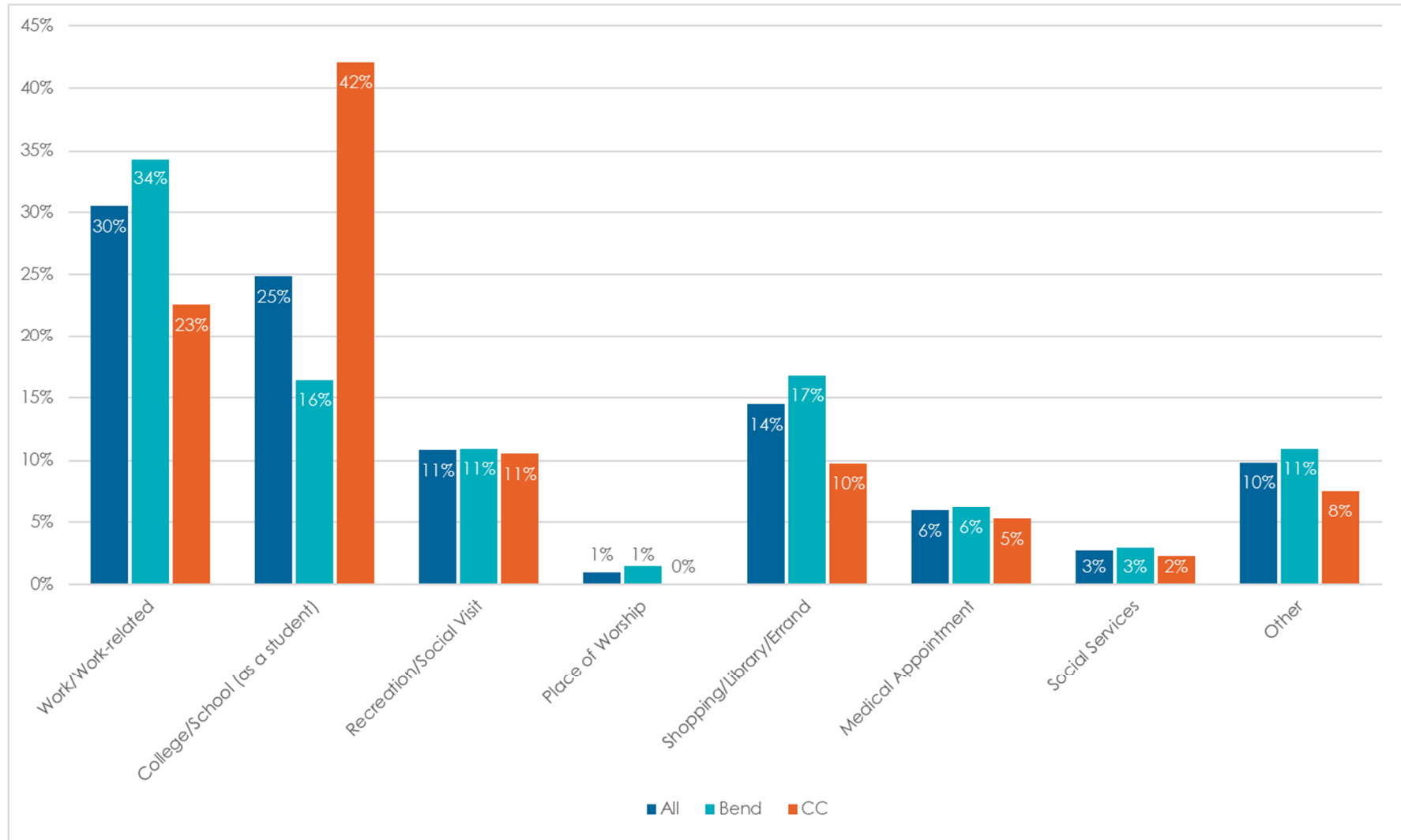


Figure 2: Trip Purpose (Overall, Bend, and Community Connector Routes)

FREQUENCY OF USE

Riders were asked how often they ride CET buses. Responses were consistent across Bend fixed-routes and Community Connector routes. (Figure 3). Highlights include:

- ▶ Overall, 55% of those surveyed ride the bus five or more days per week, and another 27% ride the bus 2 to 4 days per week, indicating that a combined 82% of CET riders use the system for routine transportation needs.
- ▶ The remaining 18% of riders (overall) use CET for occasional trips (1 to 4 days per month or less than once per month).

Q12: How often do you ride CET buses? Overall Responses: 403 (Bend Fixed-Route: 271, Community Connector: 132)

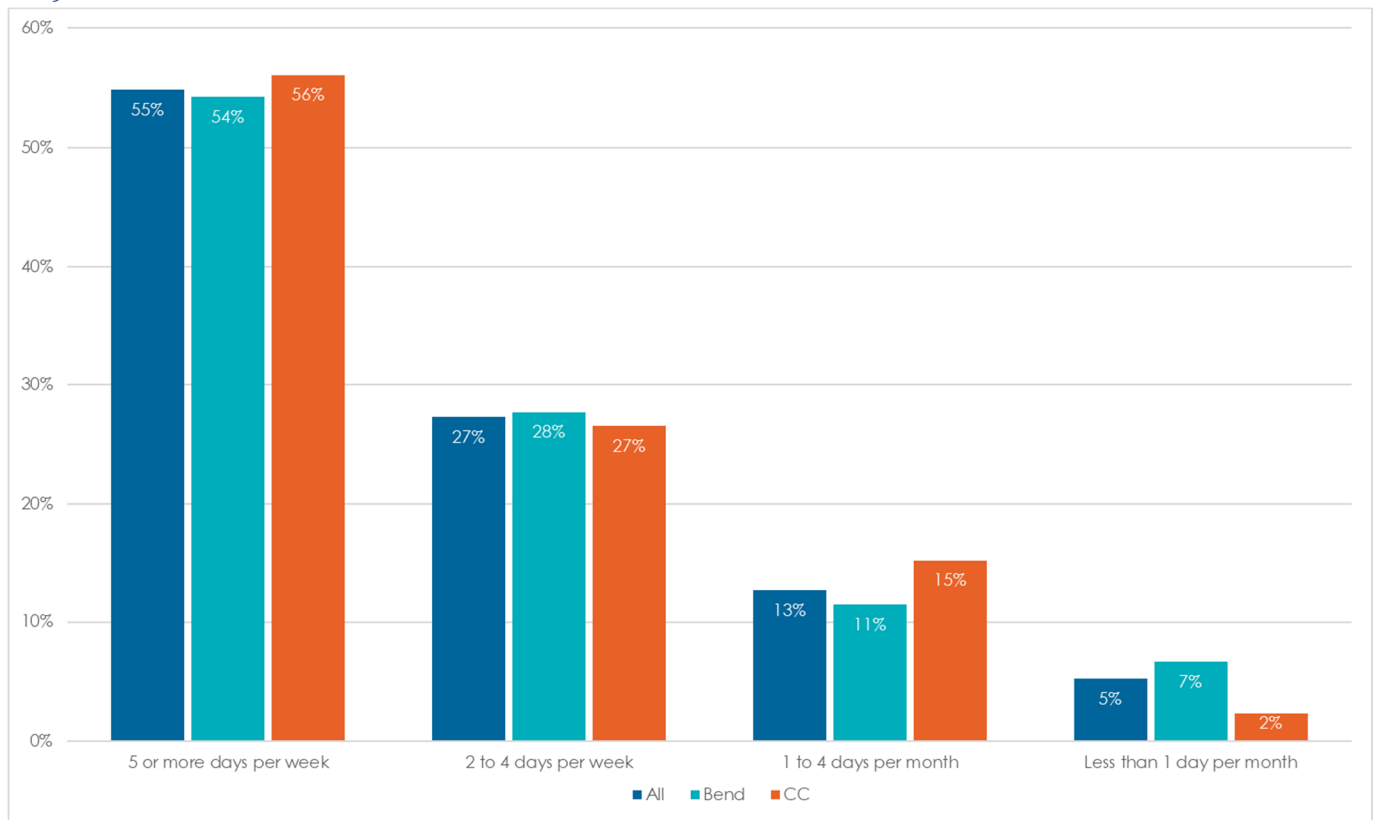


Figure 3: Frequency of CET Use (Overall, Bend fixed-routes, Community Connector routes)

NUMBER OF YEARS RIDING CET

Riders were asked how long they had been riding CET buses (Figure 4). Highlights include:

- ▶ Over a third of riders surveyed on Bend fixed-routes (37%) have been riding CET for over 4 years, while only 11% of those surveyed on Community Connector routes have been riding CET that long. A majority (52%) of Community Connector survey respondents have been riding the bus between 1 and 4 years, compared to 29% on Bend fixed-routes.

- ▶ Roughly a third of riders system-wide started using CET within the last year (similar for Bend fixed-routes and Community Connector routes).

Q13: How long have you been riding CET buses? Overall Responses: 360 (Bend Fixed-Route: 238, Community Connector: 122)

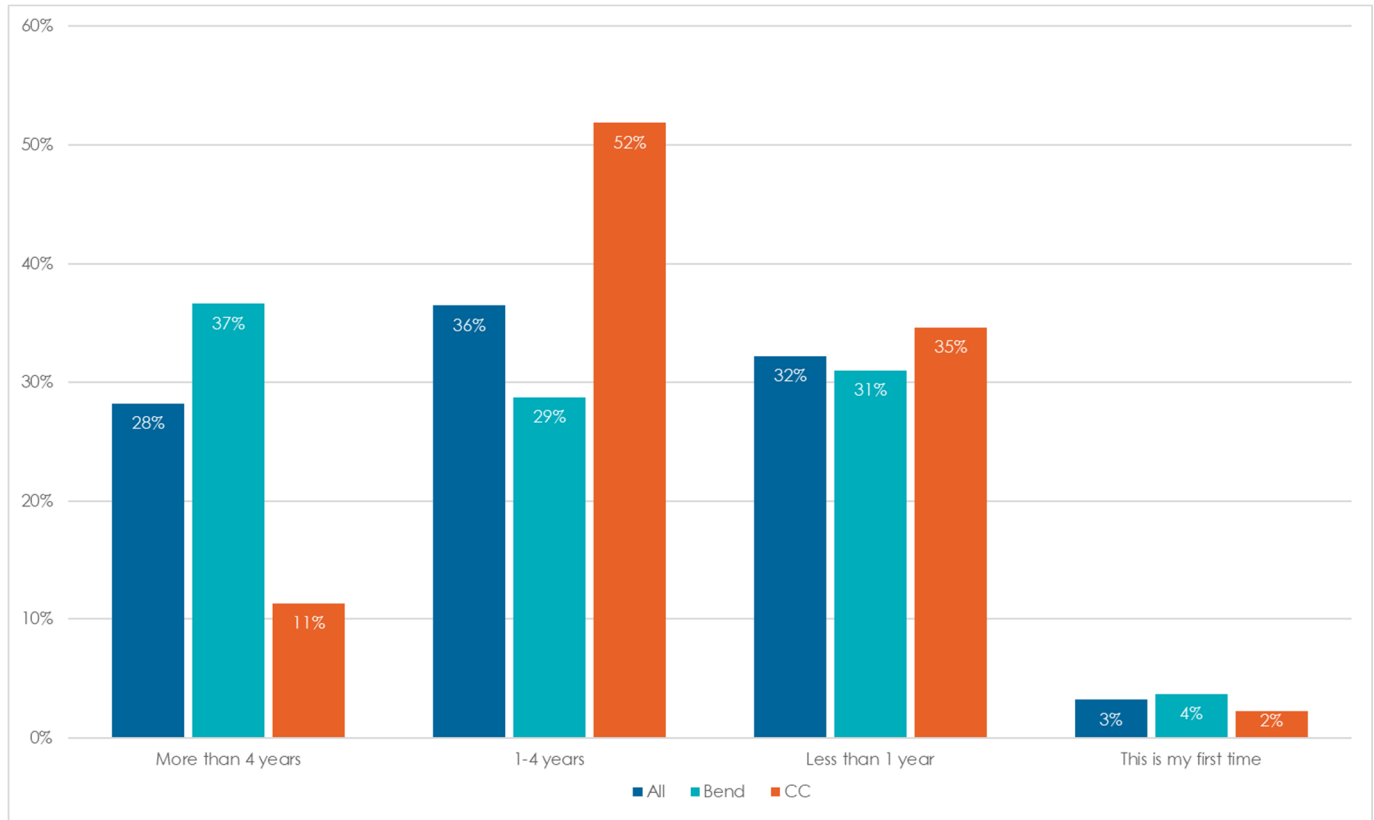


Figure 4: History of CET Ridership (Overall, Bend fixed-routes, Community Connector Routes)

TRANSFERS BETWEEN ROUTES

A majority of CET riders (65%) reported utilizing multiple routes to complete their trip. Over 70% of riders surveyed on a Bend fixed-route bus and half of riders surveyed on a Community Connector route indicated they connected to/from another CET route on at least one end of their transit trip. Table 2 lists the percentage of riders on each surveyed route that indicated they transferred as part of their transit trip. Table 3 provides more detailed transfer patterns between routes. Some respondents indicated transferring to multiple routes or taking route combinations which would be infeasible as part of a single transit trip; these are listed as “unspecified” in Table 3.

- ▶ A majority of riders on all routes (both Bend fixed-route and Community Connector) reported transferring, with the exception of:
 - ▶ Route 20, which provides service within Warm Springs as well as a connection between Warm Springs and Madras

- ▶ Route 28 (Redmond-Sisters), which serves a high share of school trips including Redmond Proficiency Academy and Heart of Oregon; many of these students indicated a school shuttle picked them up on one end of their trip.
- ▶ Route 24 (Redmond-Bend) riders indicated transfers to fixed-routes in Bend, with the highest number of transfers to/from Route 2 (serving downtown) and moderately high transfers to all local routes except 3 and 10 as noted above.
- ▶ A surprising result is that the survey did not show high transfers between Community Connector routes and Route 3, which serves COCC, or Route 10, which serves OSU, even though these institutions were in session when the survey was conducted.
 - ▶ In the case of Route 3, it is likely that the specific Route 24 trips sampled were not those with the highest demand to/from COCC based on class times, and that the Route 3 trips sampled were not those that had well-timed connections to Route 24 trips. (The rider survey for the previous CET/Bend transit plans in 2012 indicated significant transfers between Route 3 and Route 24 in particular.)
 - ▶ In the case of Route 10, this is likely because the specific Route 24 trips that were surveyed tended to connect with Route 11, which also serves OSU, and showed moderate transfer activity.
- ▶ Among Community Connector routes, the most significant transfer patterns were between:
 - ▶ Route 24 and Routes 22 (Madras), 26 (Prineville), and 28 (Sisters)
 - ▶ Route 20 (Warm Springs-Madras) and Route 22 (Madras-Redmond)
- ▶ On Bend fixed-routes, the highest percentages of transfer occurred on routes 10 (93%), 1 (82%), and 6 (81%) and the most significant transfer patterns were between:
 - ▶ Routes 1 and 4 (riders connecting between S. 3rd Street and N. 3rd Street)
 - ▶ Routes 4 and 7 (riders connecting between N 3rd Street and the 27th/St. Charles area)
 - ▶ Routes 5 and 6 (which are interlined connecting areas north and south of Greenwood east of 3rd Street)

COMPARISON TO 2012 TRANSIT MASTER PLAN RIDER INPUT

Bend Fixed-Route:

- ▶ 64% of riders reported transferring in 2012, slightly lower (by 8%) than the 2019 survey, where 72% of riders reported transferring

Community Connector:

- ▶ 34% of riders reported transferring in 2012, lower (by 16%) than the 2019 survey, where 50% of riders reported transferring

Q4 Which other bus routes have you taken / will you take on this one-way trip? Overall Responses: 413 (Bend Fixed-Route: 277, Community Connector: 136)

Table 2: Transfers between CET Routes

	Riders Surveyed	Reported Transfer	% Transfer
Surveyed Bend Fixed-Route			
Route 1 (South 3rd Street)	38	31	82%
Route 2 (Brookwood)	32	25	78%
Route 3 (Newport)	31	19	61%
Route 4 (N 3rd St)	46	31	67%
Route 5 (Wells Acres)	26	17	65%
Route 6 (Reed Market)	27	22	81%
Route 7 (Greenwood)	44	29	66%
Route 10 (Colorado)	14	13	93%
Route 11 (Galveston)	19	12	63%
Bend Fixed-Route Total	277	199	72%
Surveyed Community Connector Route			
Route 20 (Warm Springs/Madras)	21	4	19%
Route 22 (Redmond/Madras)	7	6	86%
Route 24 (Bend/Redmond)	60	36	60%
Route 26 (Redmond/Prineville)	9	5	56%
Route 28 (Redmond/Sisters)	17	3	18%
Route 29 (Sisters/Bend)	8	4	50%
Route 30 (La Pine/Bend)	14	10	71%
Community Connector Total	136	68	50%
CET System Total	413	267	65%

Q4 Which other bus routes have you taken / will you take on this one-way trip? Overall Responses: 413 (Bend Fixed-Route: 277, Community Connector: 136)

Table 3: Transfer Patterns

Surveyed Bend Fixed-Route	Transfer to/from Bend Fixed-Routes									Transfer to/from Community Connectors								Unspecified	Total
	1	2	3	4	5	6	7	10	11	20	22	24	26	28	29	30	Dial-a-Ride		
Route 1 (South 3rd Street)	0	5	3	6	3	2	4	1	2	0	0	0	0	0	0	0	0	10	36
Route 2 (Brookwood)	3	0	1	1	1	3	0	2	2	0	0	7	0	0	0	0	0	8	28
Route 3 (Newport)	0	0	0	4	2	2	3	2	2	0	0	1	0	0	0	1	0	5	22
Route 4 (N 3rd St)	11	4	3	0	1	3	7	2	1	0	0	1	0	0	1	0	0	7	41
Route 5 (Wells Acres)	1	3	1	2	0	7	1	0	0	0	0	1	0	0	0	0	0	4	20
Route 6 (Reed Market)	4	1	4	0	7	0	3	0	1	0	0	1	0	0	0	0	0	4	25
Route 7 (Greenwood)	4	4	4	3	3	3	0	1	2	0	1	1	0	0	0	0	0	8	34
Route 10 (Colorado)	4	1	2	1	0	0	5	0	1	0	0	1	0	0	0	0	0	2	17
Route 11 (Galveston)	2	0	1	3	2	0	1	1	0	0	0	4	0	1	0	0	0	0	15
Bend Fixed-Route Total	29	18	19	20	19	20	24	9	11	0	1	17	0	1	1	1	0	48	238
Surveyed Community Connector Route																			
Route 20 (Warm Springs/Madras)	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	4
Route 22 (Redmond/Madras)	0	0	0	0	0	0	0	0	0	1	0	3	0	0	1	1	1	0	7
Route 24 (Bend/Redmond)	4	9	0	3	7	4	4	0	0	0	4	0	4	4	0	0	0	0	43
Route 26 (Redmond/Prineville)	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	1	3	8
Route 28 (Redmond/Sisters)	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3
Route 29 (Sisters/Bend)	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
Route 30 (La Pine/Bend)	1	1	3	2	1	1	0	0	0	0	0	0	0	0	1	0	0	2	12
Community Connector Total	5	10	3	8	8	5	5	1	0	1	8	8	5	4	2	1	2	5	81
CET System Total	34	28	22	28	27	25	29	10	11	1	9	25	5	5	3	2	2	53	319

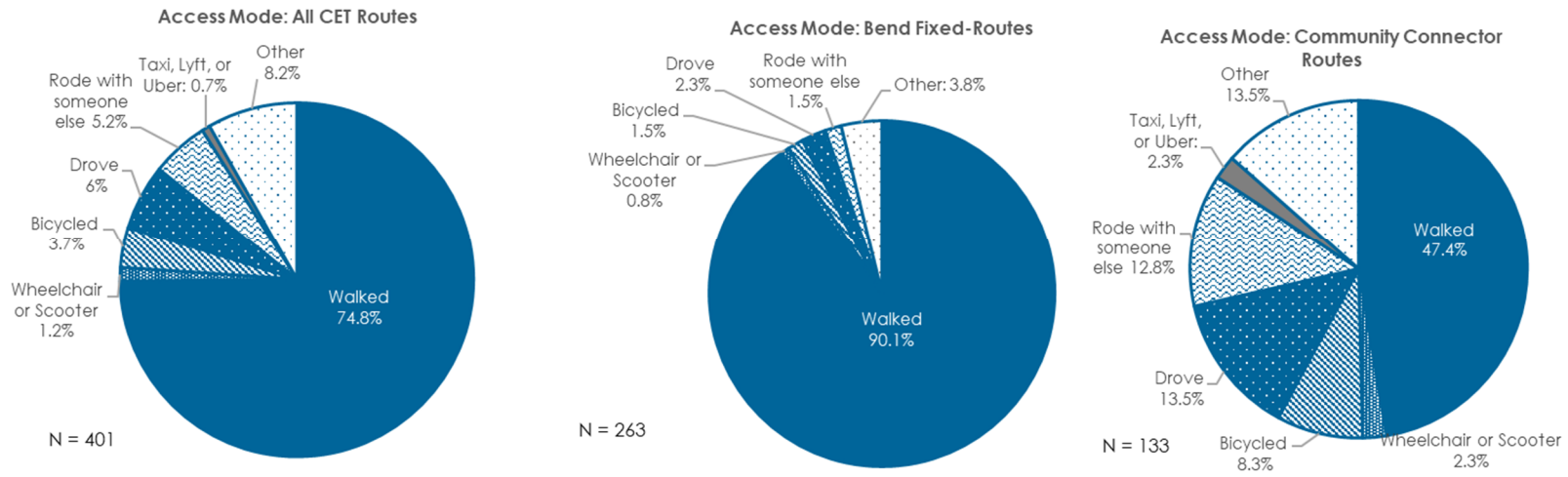
Note: Some respondents indicated transferring to multiple routes or taking route combinations which would be infeasible as part of a single transit trip; these are listed as "unspecified" in the table.

TRANSIT ACCESS

Figure 5 shows the mode used by CET riders to access the bus and to reach their final destination once they got off the bus. Figure 6 through Figure 8 show how far or long riders traveled on each respective mode. Highlights include:

- ▶ **CET riders most often access the bus on foot.** The majority of riders on Bend fixed-routes walked both to access the bus and reach their final destination. Roughly half of riders on Community Connector routes walked to and from the bus, but utilized other modes (e.g., drove themselves, got a ride with someone else, or bicycled) more frequently than those surveyed on Bend fixed-routes (Figure 5).
- ▶ **Riders on Community Connector routes walked longer to access transit than riders on Bend fixed-routes**—on average, approximately 12 minutes versus 9 minutes. Of Bend fixed-route riders who walked to/from the bus, nearly 80% walked 10 minutes or less, compared to approximately 60% of Community Connector riders who walked to/from the bus (Figure 6).
- ▶ **The average bicycle trip to/from transit was approximately two miles**, without clear differences between surveys completed on Bend fixed-routes and Community Connector routes. However, few riders on Bend fixed-routes reported using bicycles to access transit or their final destination, and their trips were shorter and either in the 1-2.5 miles or 2.5-5 miles categories. Riders on Community Connector routes used bicycles for similar length trips, but also used bicycles for both short (< 1 mile) and longer (more than 5 miles) access distances (Figure 7).
- ▶ **A relatively small share of riders drove to access the bus—traveling an average of 8.5 miles**, with a mix of relatively short (1-3 mile) and moderate-length (4-10 mile) trips (Figure 8).

Q6: How did you get to the first bus stop on this one-way trip?



Q7: How will you get from the final bus stop on this one-way trip to your destination?

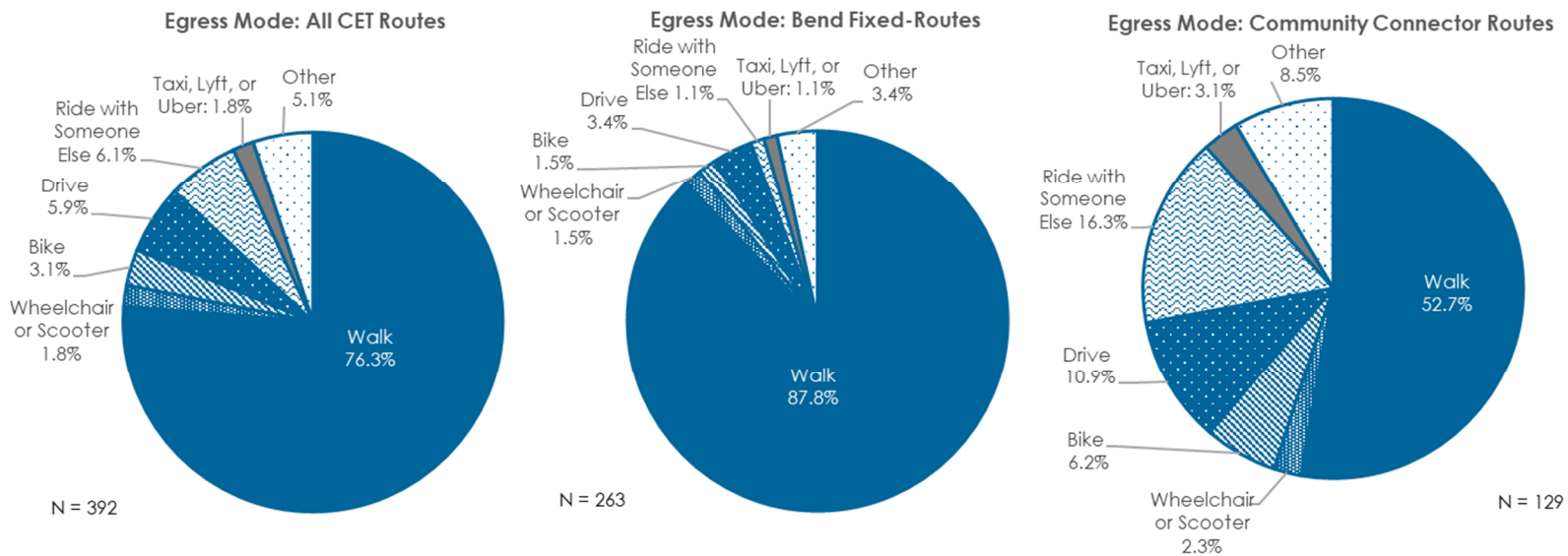
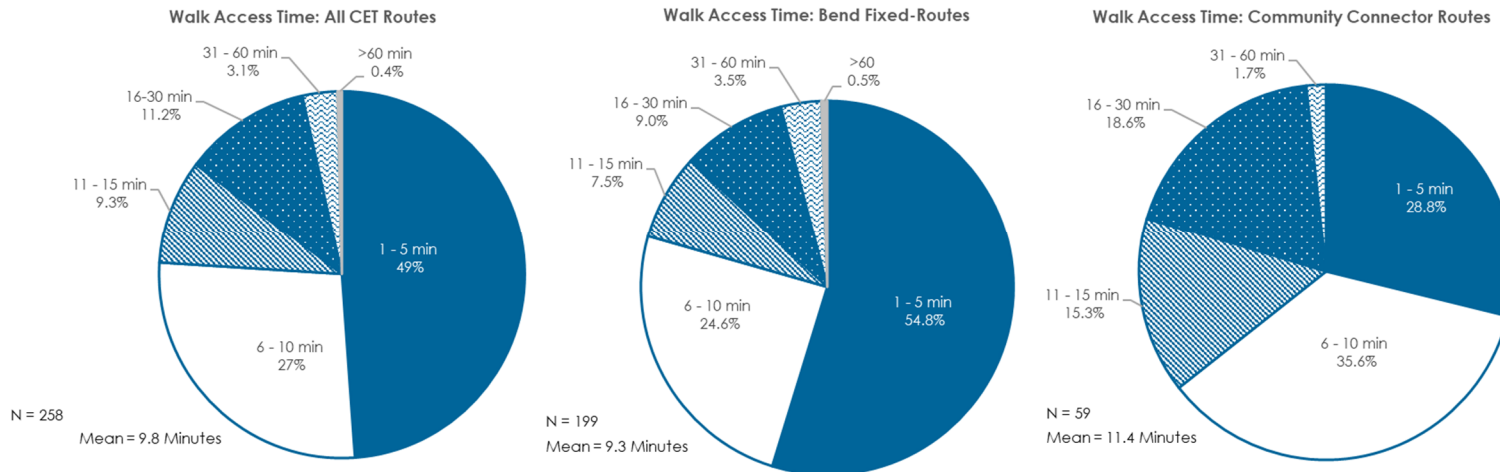


Figure 5: Transit Access and Egress Modes (Overall, Bend, and Community Connector Routes)

Q6: How did you get to the first bus stop on this one-way trip? If walked, how many minutes?



Q7: How will you get from the final bus stop on this one-way trip to your destination? If walk, how many minutes?

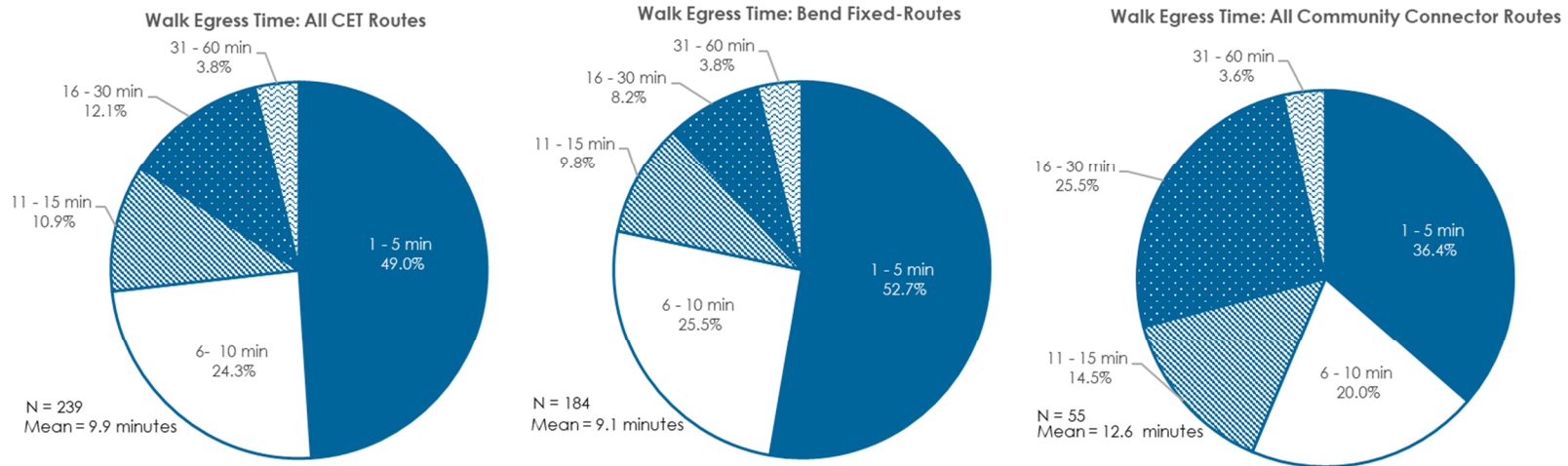
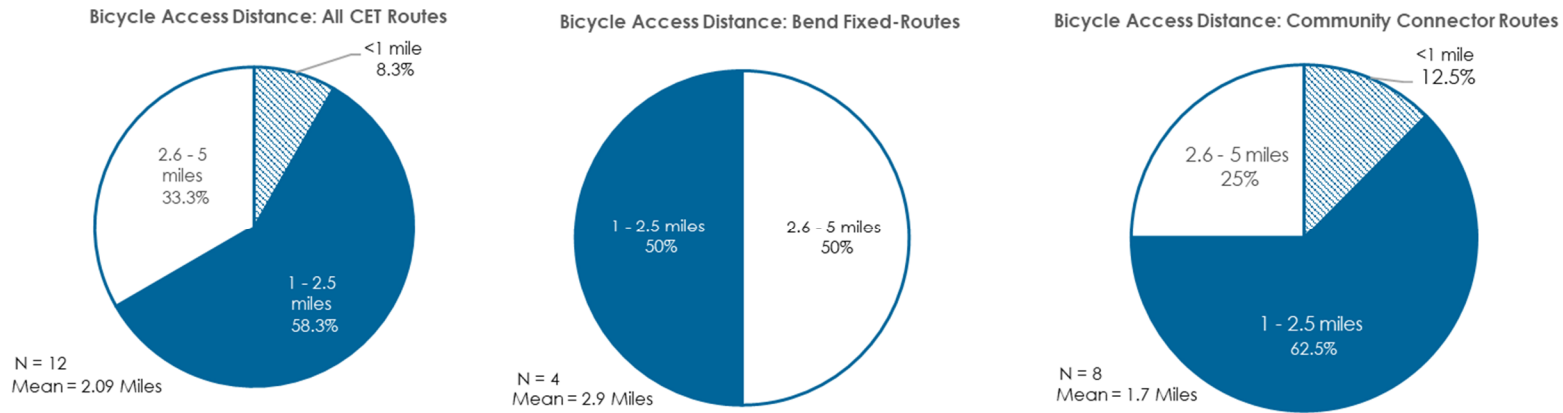


Figure 6: Walk Access and Egress Trip Time (Overall, Bend, and Community Connector Routes)

Q6: How did you get to the first bus stop on this one-way trip? If bicycled, how many miles?



Q7: How will you get from the final bus stop on this one-way trip to your destination? If on a bicycle, how many miles?

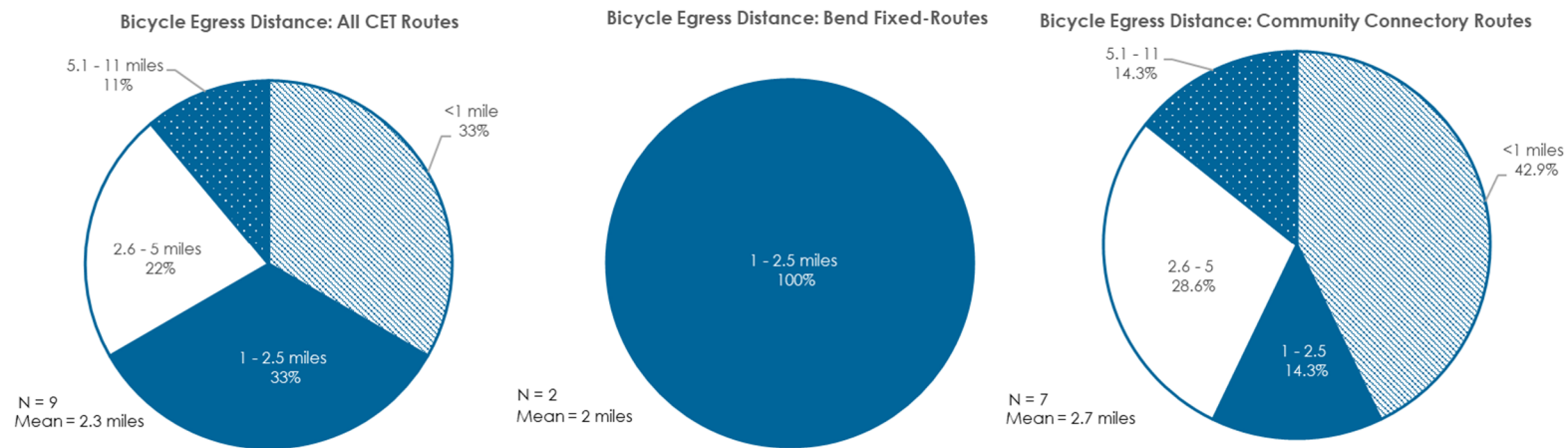
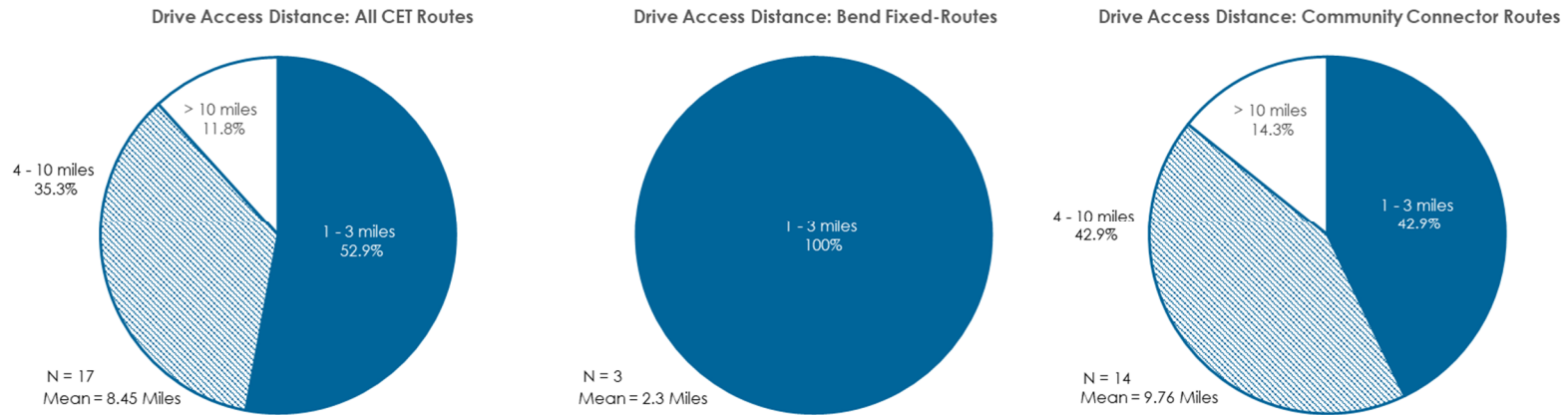


Figure 7: Bicycle Access Trip Distance (Overall, Bend, and Community Connector Routes)

Q6: How did you get to the first bus stop on this one-way trip? If drove a car, how many miles?



Q7: How will you get from the final bus stop on this one-way trip to your destination? If drive a car, how many miles?

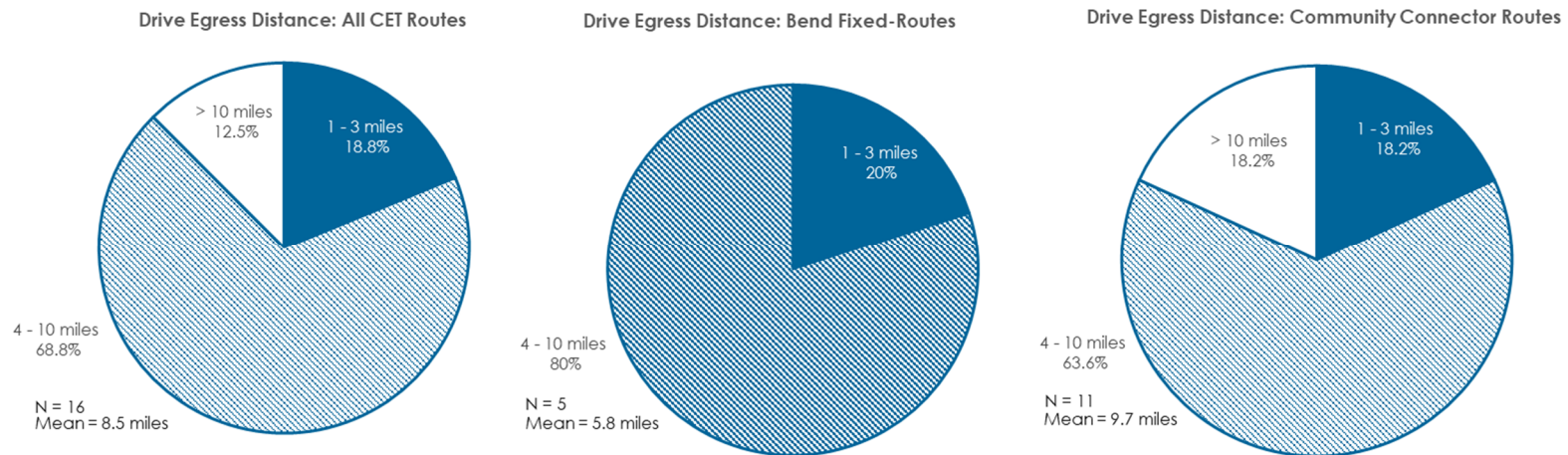


Figure 8: Driving Access Trip Distance (Overall, Bend, and Community Connector Routes)

FARE TYPE AND DISCOUNTS

Riders were asked what type of fare payment mechanism they used for the ride on which they completed a survey (Figure 9), as well as whether they paid a discounted fare (Figure 10).

Highlights include:

FARE TYPE

- ▶ **Approximately one-third of riders paid fares in cash (similar between Bend fixed-route and Community Connector),** but the use of other payment methods varied widely between Bend and Community Connector routes.
 - ▶ **The majority (57%) of those surveyed on Bend fixed-routes reported using either a daily or monthly pass,** as opposed to 19% of riders on Community Connector routes.
 - ▶ **TouchPass fare cards were used by 28% of Community Connector riders,** but just 4% of riders surveyed on Bend fixed-routes.
 - ▶ **Employee or student group passes were used by 20% of Community Connector riders,** but just 4% of riders surveyed on Bend fixed-routes.
- ▶ **Use of the TouchPass mobile app is relatively low (3%) system-wide** (minimal difference between Bend fixed-route and Community Connector).

DISCOUNTED FARES AND PASSES

- ▶ **Over a third (37%) of riders on Bend fixed-routes used a senior (age 60+ are eligible) or disabled discount fare.** Based on the reported age of riders (23% are age 55+), a significant share likely qualify for the reduced fare based on a disability.
 - ▶ Approximately **11%** of Bend fixed-route riders used an employee or student group pass
 - ▶ Only **4%** paid a youth fare—although a higher share of riders were students (17%) or under 18 (9%).
- ▶ **A relatively high share of employee and student group passes were used on Community Connector routes (38%).**
 - ▶ A smaller share (19%) of Community Connector riders used a senior/disabled discounted fare compared to Bend.

Q9: What type of fare did you use for this one-way trip? Overall Responses: 405 (Bend Fixed-Route: 272, Community Connector: 133)

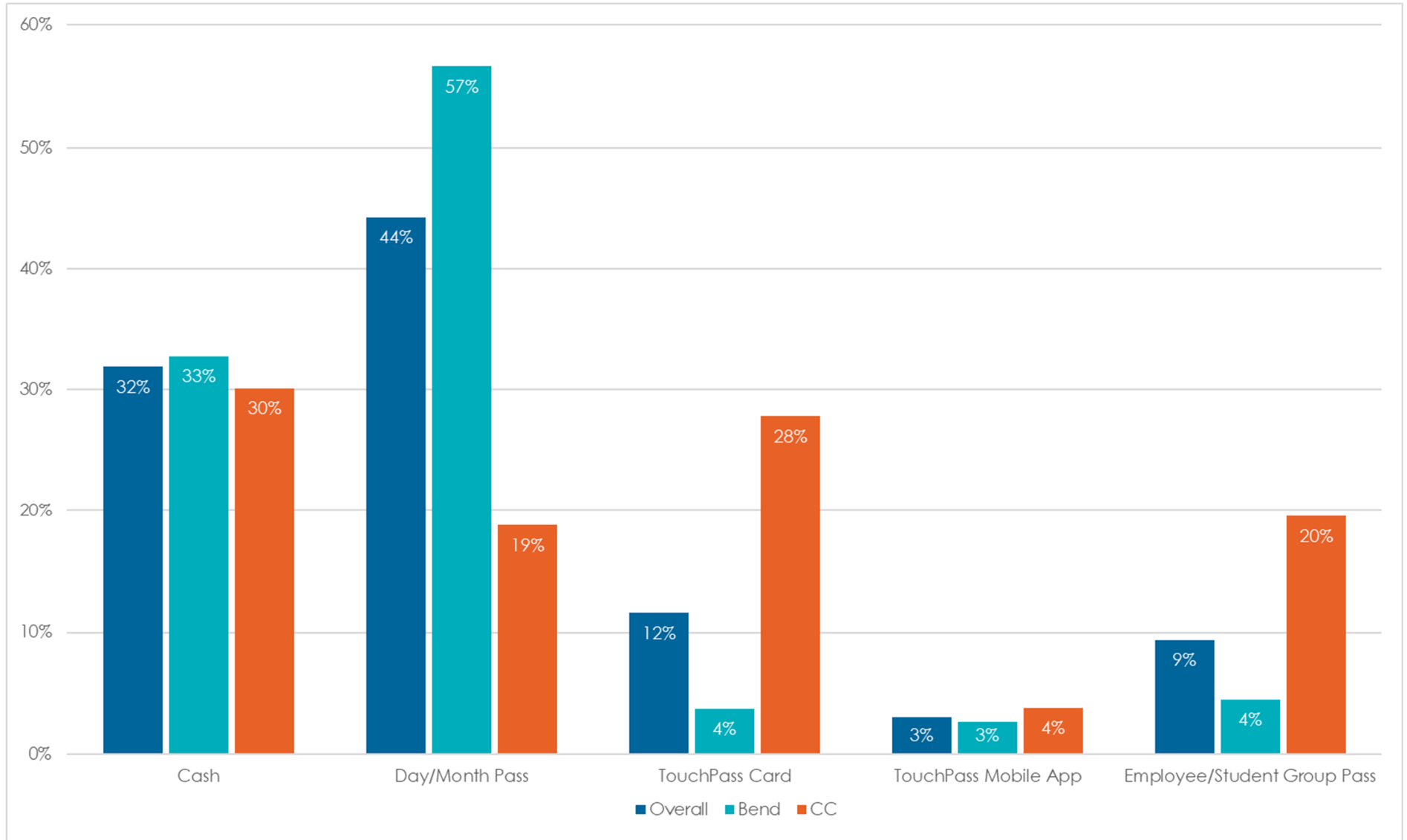


Figure 9: Fare type used (All routes, Bend fixed-routes, Community Connector routes)

Q9: Did you use a discounted or full fare? Overall Responses: 382 (Bend Fixed-Route: 261, Community Connector: 121)

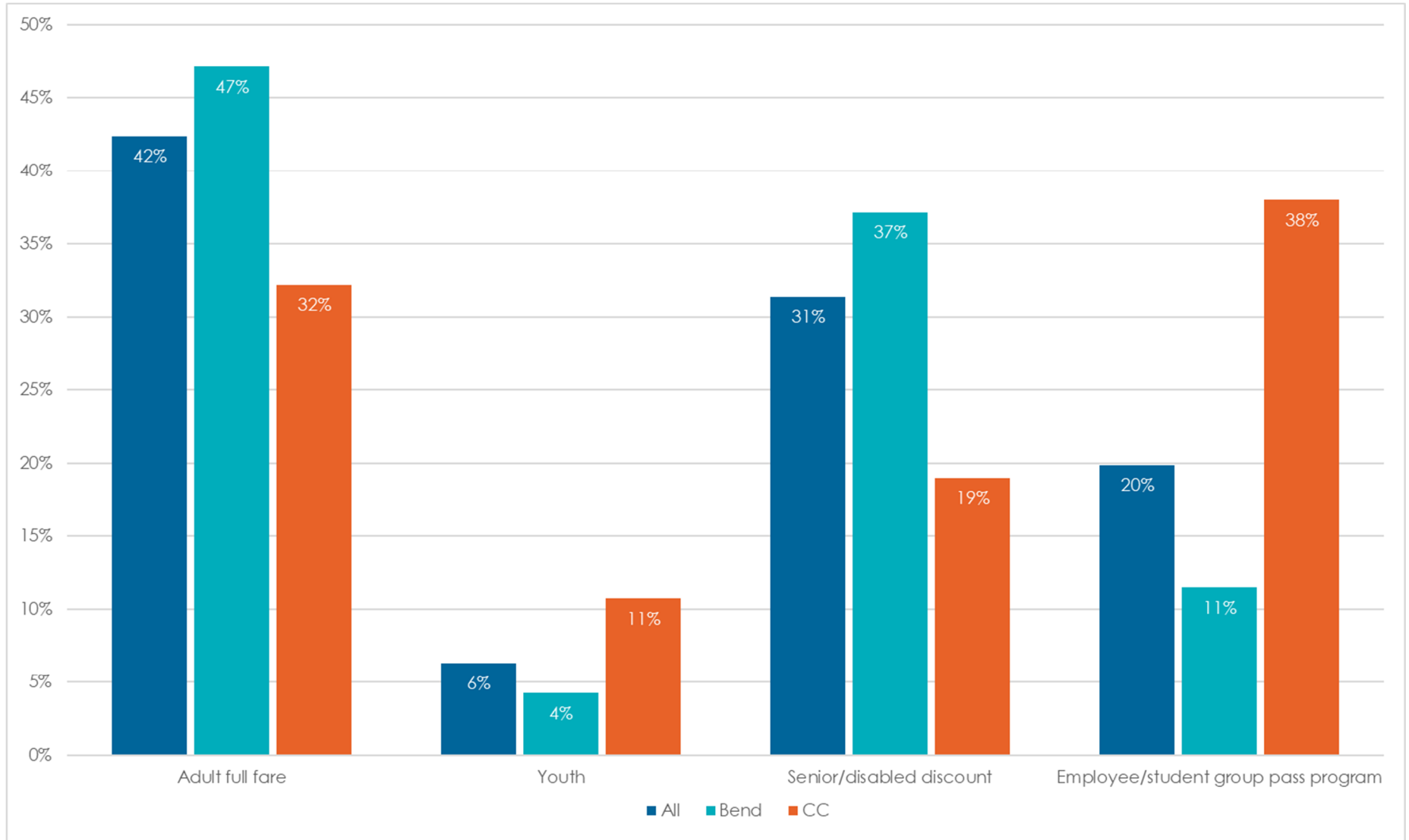


Figure 10: Percent of CET Riders Using Discounted Fare (Overall, Bend fixed-routes, Community Connector routes)

ALTERNATIVES TO CET SERVICE

Riders were asked to identify how they would have made the trip they were on at the time of the survey if the bus service was not available. About 34% of riders system-wide said that they would have forgone the trip altogether, indicating that CET is filling a mobility gap for a significant portion of riders (Figure 11).

- ▶ **Approximately 39% of Community Connector riders and 32% of Bend fixed-route riders said they would not have made their trip if bus service was not available.**
 - ▶ Among those that indicated they would have forgone their trip, 47% of Bend fixed-route riders and 34% of Community Connector riders came from households that did not own a vehicle.
- ▶ **24% of Community Connector riders said they would have carpooled or been dropped off and another 19% said they would have driven themselves**, indicating that nearly half of Community Connector riders have access to a shared ride or their own vehicle. A relatively small share of riders surveyed on Bend fixed-routes indicated they would use these options (9% and 3%, respectively).

Approximately 36% of those surveyed on Bend fixed-route buses said walking would be their next best option, while 10% would have bicycled; these were not options for most Community Connector riders, given the long trip distances.
- ▶ **Approximately 16% of Bend fixed-route riders said they would use a taxi, Lyft, or Uber in place of the bus**, compared to 6% of those on Community Connector routes.

Q11: How would you have made this trip if bus service were not available on this one-way trip?

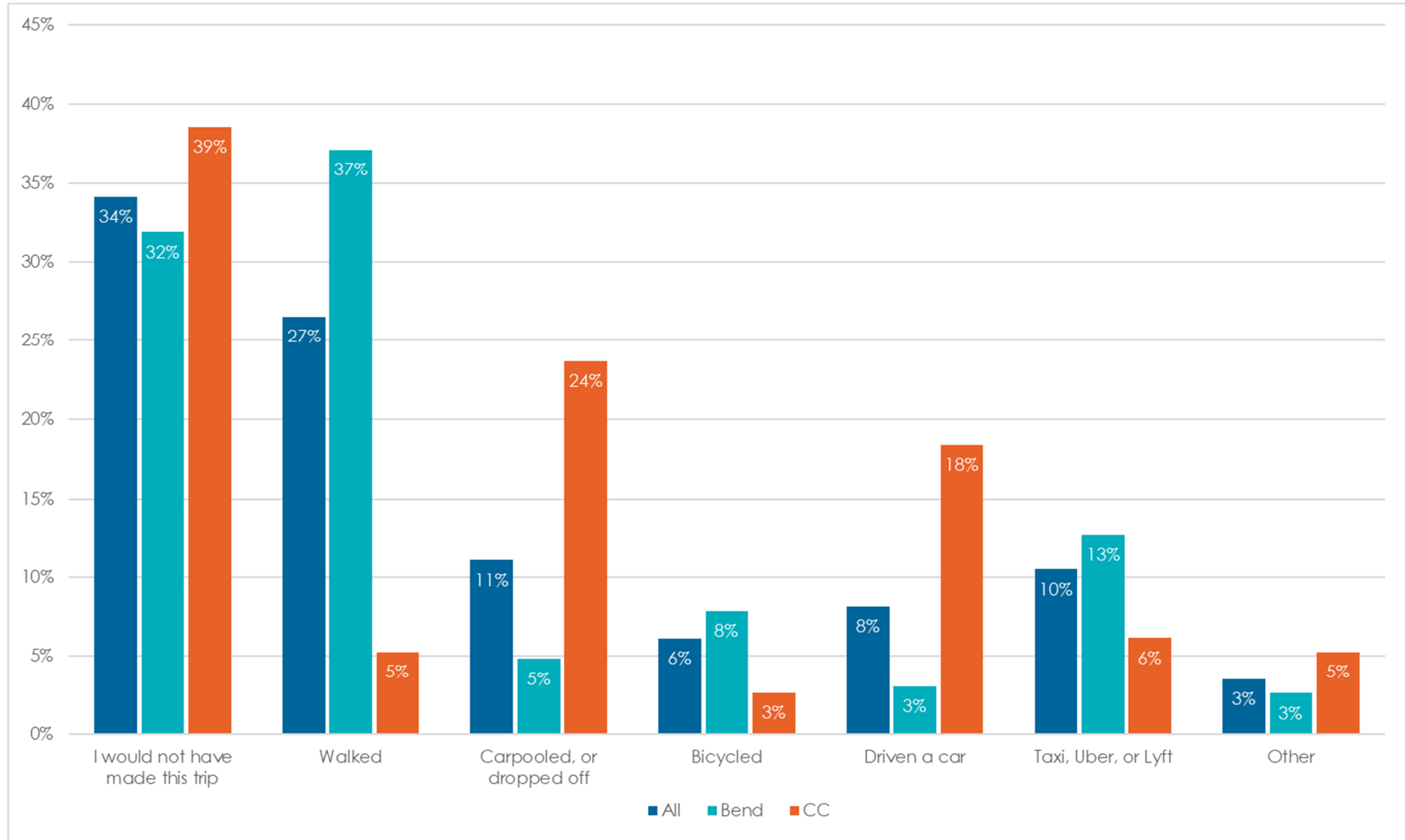


Figure 11: Alternative Transportation Options if Bus Were not Available (All routes, Bend fixed-routes, Community Connector)

CUSTOMER PERCEPTIONS OF CURRENT CET SERVICE

Approximately 80% of CET's riders are satisfied with the overall service and rated it as either Excellent or Good; this is similar to the surveys conducted for the CET Transit Master Plan in 2012. Figure 12 shows areas where CET is well or could improve. Highlights include:

- ▶ Riders were most satisfied with driver courtesy, and 80% or more felt that the system is easy to understand and goes where they need to go.
- ▶ Riders who completed a survey on a Bend fixed-route bus were least satisfied with on-time performance and timing/reliability of transfers (45% fair or poor).
- ▶ Riders who completed a survey on a Community Connector route were most concerned with availability of seats (20% poor and 15% fair), consistent with high demand on some trips, and condition of bus stops (38% fair or poor).

Q19: Please rate your perception of CET bus service. Overall Responses: 355 (Bend Fixed-Route: 234, Community Connector: 121)

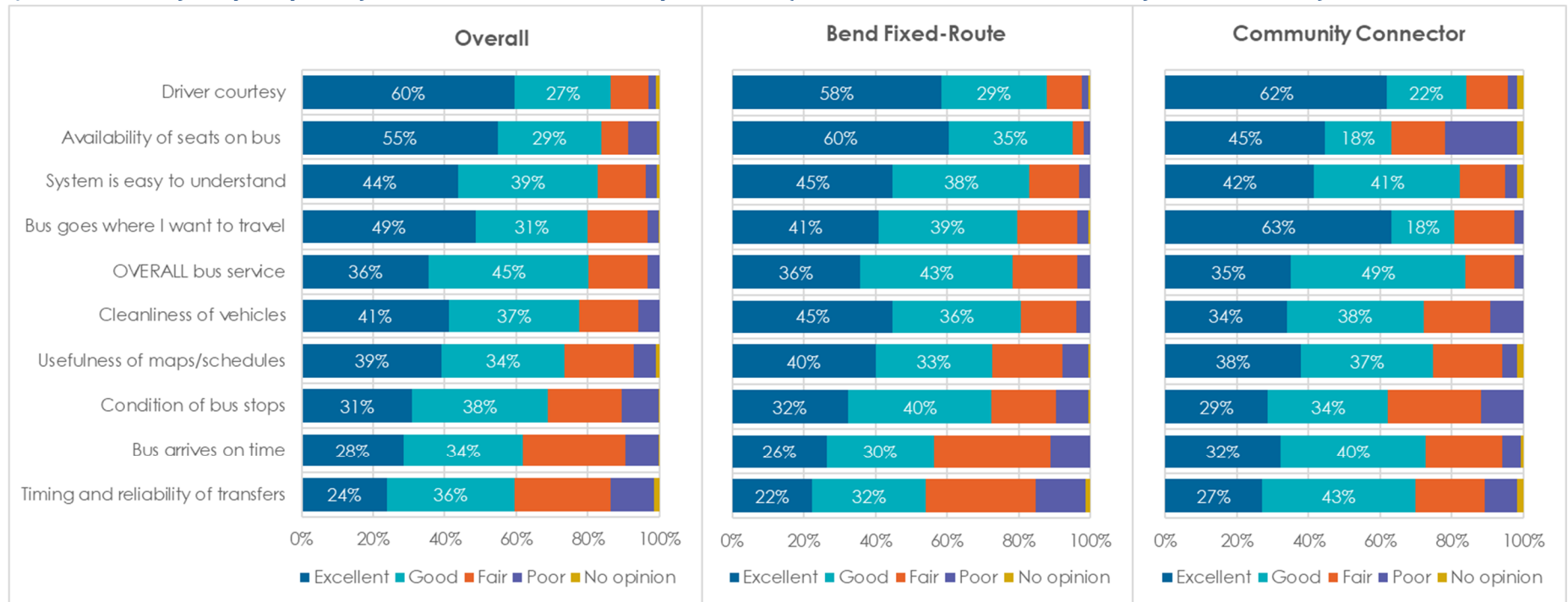


Figure 12: Perception of Current CET Service

IMPROVEMENT PRIORITIES

Figure 13 and Figure 14 show riders' priorities for improving the Bend fixed-route and Community Connector systems. Riders were asked to identify up to three potential improvements that would help them choose to ride more often (Figure 13) and then to identify the single improvement that they think is most important (Figure 14).

- ▶ **Longer Saturday service hours (earlier and/or later) on Bend fixed-route service and later evening hours on Bend fixed-route service** were the improvements identified by the most riders overall (nearly half) and by a clear majority of riders who completed surveys on Bend fixed-route buses (Figure 13). These were also the third and fourth highest priorities among riders who completed surveys on Community Connector routes and they were identified as the single most important improvements by the most riders (22% for evening service hours and 16% for longer Saturday hours as shown in Figure 14).
- ▶ **Community Connector service on Saturdays** was tied for the next highest priority (29% overall), including 45% of riders surveyed on a Community Connector route. Nearly a quarter of these riders also identified Saturday service as the most important improvement. Riders surveyed on Bend fixed-routes also identified Saturday service as a high priority (22% among the Top 3, and 11% as the most important).
- ▶ **More frequent weekday service in Bend** was also identified among the Top 3 improvement by 29% of riders, including 38% of riders surveyed on Bend fixed-route service. However, only 3% of riders identified it as the most important improvement.
- ▶ **Ensuring buses run on time** was a high priority for a quarter of riders, including 14% who identified it as the top priority.
- ▶ Among **other priorities for the Community Connector system**, increasing frequency in the morning/afternoon and running later in the evening received a similar amount of support (approximately 17 to 18% prioritized among the top 3 improvements), with a lower level of support for more midday trips (10%).
 - ▶ Among riders who completed surveys on Community Connector routes, 36% prioritized **more frequent morning/afternoon trips**, with an even split between **adding midday and later trips** (20% each).
 - ▶ Riders who completed surveys on Bend fixed-routes had slightly different priorities, with a larger share (17%) prioritizing **later evening trips** compared to **morning/afternoon trips** (8%) and **midday trips** (5%).
- ▶ For the Bend system, about 15% of riders overall prioritized **adding new routes or stops**.

COMPARISON TO 2012 TRANSIT MASTER PLAN RIDER INPUT

Bend Fixed-Route:

- ▶ 68% of riders prioritized later evening service (until as late as 10 PM)
- ▶ 44% of riders prioritized more frequent Saturday service (service ran every 80 minutes, less frequently than today) and 39% prioritized longer Saturday hours.

Community Connector:

- ▶ 54% of riders prioritized Saturday service
- ▶ 39% of riders prioritized more frequent morning/afternoon service
- ▶ 34% of riders prioritized midday service
- ▶ 24% of riders prioritized later evening service

Q20: Please identify up to THREE improvements that would help you choose to ride the bus more often. Overall Responses: 316 (Bend Fixed-Route: 213, Community Connector: 103)

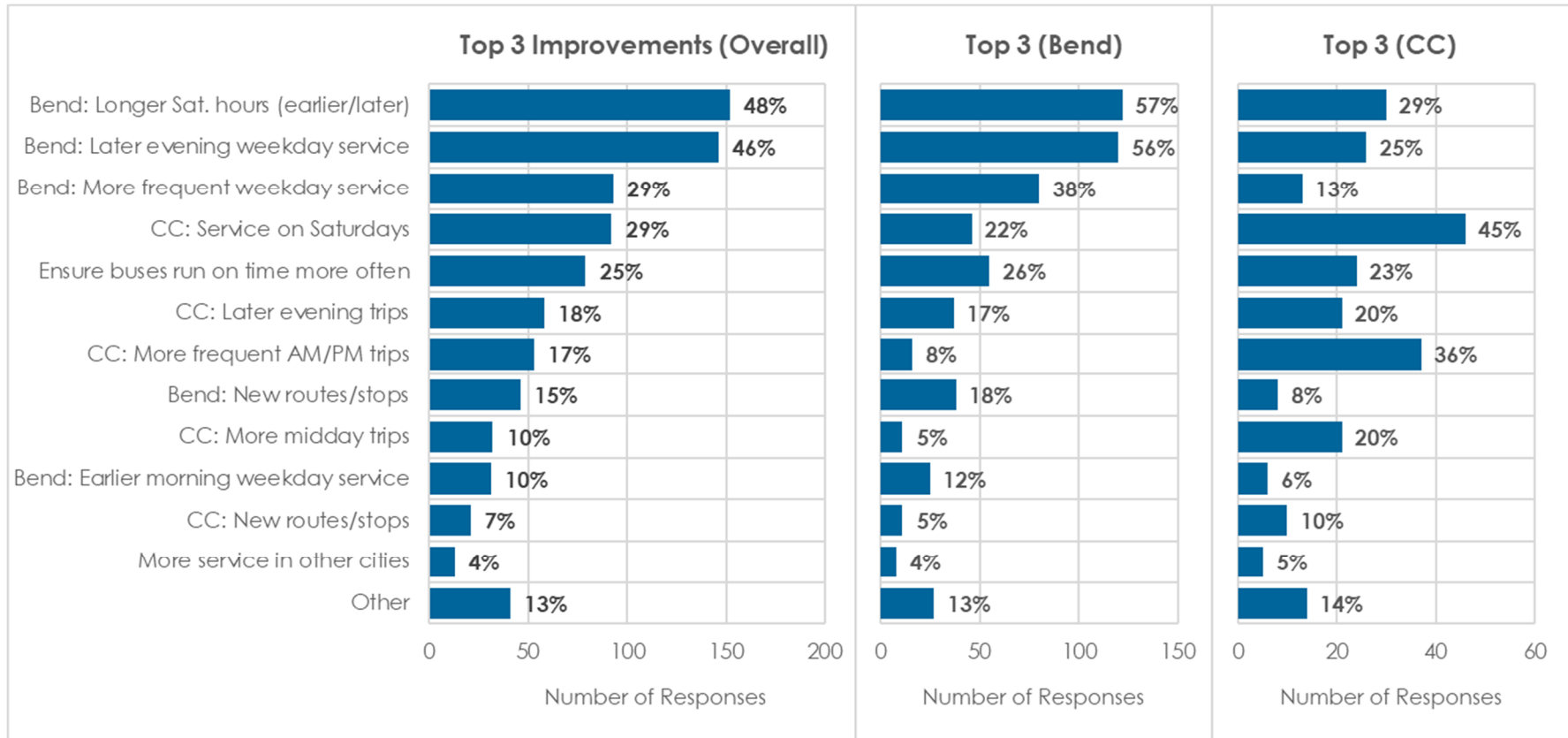


Figure 13: Rider Priorities for Improving CET Service: Top 3 Improvements (Overall, Bend, and Community Routes)

Q20: Please identify up to THREE improvements that would help you choose to ride the bus more often. Overall Responses: 316 (Bend Fixed-Route: 213, Community Connector: 103).

Q21: Please circle the ONE improvement in #20 that you think is the most important. Overall Responses: 140 (Bend Fixed-Route: 87, Community Connector: 53)

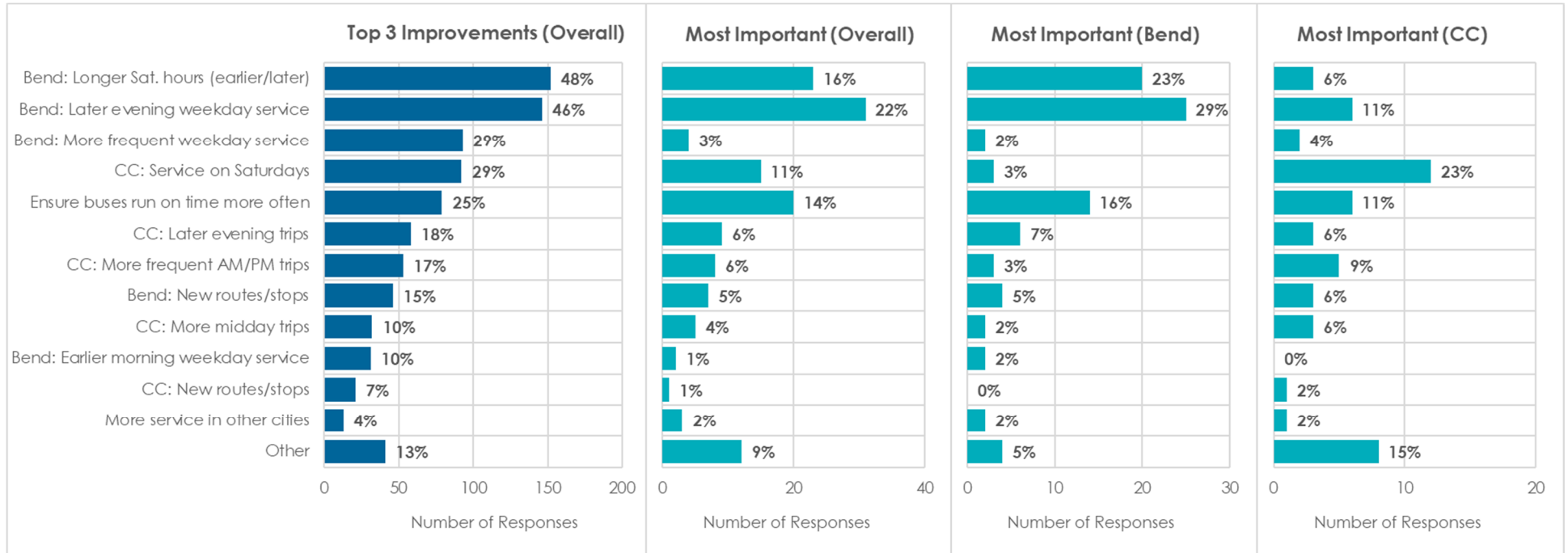


Figure 14: Rider Priorities for Improving CET Service: Top 3 Overall vs Most Important Improvements (Overall, Bend, and Community Connector Routes)

RIDER FEEDBACK

Survey respondents were given the opportunity to provide comments about how CET service could be improved. Many of the sentiments expressed in these comments reflect riders' stated improvement priorities (Figure 13 and Figure 14). A selection of rider comments, categorized by theme, are listed below. Some comments were edited for clarity while retaining the original sentiment.

Highlights include:

WEEKEND SERVICE

- ▶ **The need for weekend bus service** was the most frequent comment. Nearly 30% of comments mentioned a desire for extended Saturday service and/or Sunday service, consistent with riders' stated improvement priorities.
 - ▶ "I believe CET should run on weekends because it gives people the opportunity to get to town on weekends for work."
 - ▶ "Saturday and Sunday would be the improvement I'd like to see. To have service on the weekend would make it so I can go from Terrebonne to Bend for more city and community events."
 - ▶ Specific routes identified include: La Pine-Bend, Sisters-Redmond, Redmond-Prineville

EXTENDED WEEKDAY SERVICE

- ▶ **Running buses later on weekdays** was the second most frequent comment. Generally, riders suggested until 9 or 10 PM.
 - ▶ "I pay \$100 a month because bus service isn't available at the time I need to go to work. Later routes would help. Other people working my hours need this."
 - ▶ "Later evening services between cities to allow more flexible commute hours. The bus does not run late enough."

FREQUENCY

- ▶ **More frequent service on Community Connector routes:**
 - ▶ "Riding daily from Madras to Bend, my arrival is limited to 8 am and (departure from) work is limited to 5 pm."
 - ▶ "If 22 could match up better/more frequently with 24, that would be great."
 - ▶ Additional later trip on Redmond-Prineville route
- ▶ **Mid-day Community Connector service:**
 - ▶ "More mid-day trips to Redmond and La Pine" (two comments)
 - ▶ "Mid-day service on Route 29."

LATE/EARLY BUSES AND TIMING OF SCHEDULES/TRANSFERS

- ▶ **Frustration about late or early buses, which sometimes lead to missed transfers:**
 - ▶ "I would like the bus to try to arrive earlier or wait at least 4 minutes passed their required time to leave, because sometimes in Redmond or Madras I have to chase the bus down and it never stops."

- ▶ “Please arrive at Hawthorne on time. Students miss buses home because the bus arrives late (after 3:00 PM) and all connecting buses have already left. Students have jobs, younger siblings, and other important things to attend to. [Late buses] make it especially hard on parents of younger riders.
- ▶ **Route 4:** Several people commented specifically that this route is consistently late:
 - ▶ “Bus #4 is always running late and I often miss the connection to Sisters.”
 - ▶ “The 4 either needs 2 buses running the route (ideal) or to be on a 45-min rotation, as it is frequently very late/behind.”
- ▶ **Mistimed transfers independent of buses running on-schedule:**
 - ▶ “Check out times of connections and transfers.”
 - ▶ “Timing is essential for riders that must transfer buses to get to another city.”
 - ▶ “The timing with the (Community Connector) buses is way off.”
 - ▶ “Would like a 3 minute waiting gap, so if you need to get other bus right after you get to the bus station and not have to wait other 30 or 45 minutes.”

ROUTE DESIGN, COVERAGE, OR ADDITIONAL STOPS

- ▶ There were several comments on route coverage or additional stops, with no particular pattern to geographic area. Some suggestions include:
 - ▶ Routes 7 and 11: “If route 7 could wait to transfer when 11 comes. I ride #7 to work and my daughter school. I wish that when this bus turn to #11 the new #7 could wait to transfer. Thank you!”
 - ▶ “7 day schedule 7 AM - 11 PM. Improvement of timelines and frequency. Focus on major cross town routes i.e., 1, 3, 4, 7”
 - ▶ County Sunset Mobile Home Park and Ferguson Road in SE Bend
 - ▶ Route 24: More stops in Bend (run on Hwy 20 to Division and Greenwood/Wall)
 - ▶ Route 29: Stops in Tumalo, ODOT/DMV, and/or Robal Road; Empire on inbound trips.

BUSES (OVERCROWDING, CLEANLINESS, AND OTHER ISSUES)

- ▶ Comments related to capacity and overcrowding, including five survey respondents aboard Route 24 (Redmond-Bend):
 - ▶ “Multiple buses needed for busy routes – 24, 26, 22, 28. Buses are extremely crowded and it is hard to breathe because there are so many people that the aisles are always full.”
 - ▶ “More seating would be great!”
 - ▶ “Please send bigger buses – half the people on the buses end standing and squished, I was once squished enough where I could stand without holding onto anything. Thank you!”
 - ▶ “Buses are full: Bend-Redmond 6:44 am, Redmond to Bend 2:23 PM”
 - ▶ “The small buses have no room for a service dog. A bus driver will ask you to get off their bus because there is no place for the dog! I am still awaiting a call on this complaint.”
- ▶ Comments about cleanliness of vehicles:
 - ▶ Two Route 24 (Redmond-Bend) riders complained about poor cleanliness on the bus.
- ▶ A few people commented on being passed by the bus either while waiting at the stop or attempting to chase it down.
 - ▶ “Buses pass people waiting for them quite often. I've been waiting for a ride and had the bus I was waiting for drive past me”

- ▶ "The bus has driven by me while I was waiting at a stop on four separate occasions. Only once did the driver stop to let me on after driving past. I was not walking towards the stop, I was standing at the stop waving my arms. How is this okay? This was on Route 5."

TRANSIT APP/PASSENGER INFORMATION

- ▶ Five survey respondents commented on TransitApp, three of which were complaints about inaccuracy.
- ▶ Request for upcoming stops to be indicated with text rather than just verbal announcements from the driver.
- ▶ Passes available on phone app

BUS STOPS (AMENITIES, CROSSINGS, AND SAFETY CONCERNS)

- ▶ Besides requests for extended and more frequent service, remarks regarding bus stops were most common among riders.
 - ▶ Five people remarked on the lack of trash cans (such as the Redmond and Madras hubs), or full receptacles at bus stops.
 - ▶ Other riders commented on out-of-date schedules at bus stops (e.g., in Sisters and Prineville).
 - ▶ More seating and shelters (enclosed benches) at stops was a common request.
 - ▶ "Inaccessibility to bus stops when snow is present leads to dangerous situations for pedestrians waiting in street or trudging over snow mounds to flag down the bus. I know this would mean working with the City of Bend to assist in more efficient and effective snow removal."
 - ▶ "Stops need reflectors for safety at night".
 - ▶ Request for a crosswalk at the Hawthorne and 3rd Street stop.
 - ▶ Request for more amenities at Redmond Hub (phone, trash can, water fountain).

BUS DRIVERS

- ▶ Eight riders provided positive feedback for the drivers, including positive comments for specific drivers (Barbie, Rudi, Diana):
 - ▶ "Most of the drivers are amazing and I feel safe with most drivers."
 - ▶ "(The driver on) bus #5 is always courteous and always reminds me about the seat belt. She's very nice."
- ▶ The same number of riders provided negative comments about drivers:
 - ▶ Two people commented that drivers do not wait for people to board and be seated safely before moving.

GENERAL POSITIVE FEEDBACK

- ▶ Some riders left general, positive feedback for CET or about the need for bus service:
 - ▶ "I think the bus has improved a lot in the last few years. I've been a rider since we got a bus in Bend, and I appreciate the service. Thank you."
 - ▶ "Overall, great service. I use it every day because I cannot drive."
 - ▶ "The bus is very necessary to us. I go to work, to grocery shopping, to my daughter school every weekday. Thank you!"

MISCELLANEOUS FEEDBACK

- ▶ Other comments that do not fall into the categories listed above:
 - ▶ Appreciation for CET's willingness to work with schools for low cost or free bus fares.
 - ▶ Request for additional service during special events.

- ▶ "Better communication with management!"

DEMOGRAPHICS OF CET RIDERS

Survey respondents were asked to identify their ethnicity (Figure 15) and their age (Figure 16). Highlights include:

RACE/ETHNICITY

- ▶ The majority of riders are white, including 79% of riders surveyed on Bend fixed-route and 70% of riders surveyed on Community Connector routes.
- ▶ 10% of riders on Bend fixed-routes and 7% of riders on Community Connector routes identified as Hispanic or Latino.
- ▶ 12% of riders on Community Connector routes (including Route 20 serving Warm Springs) identified as American Indian or Alaska Native, compared to 1% of Bend fixed-route riders.
- ▶ 6% of respondents system-wide marked "Other," or selected two or more ethnicities.

Q18: What is your race or ethnicity? Overall Responses: 357 (Bend Fixed-Route: 234, Community Connector: 123).

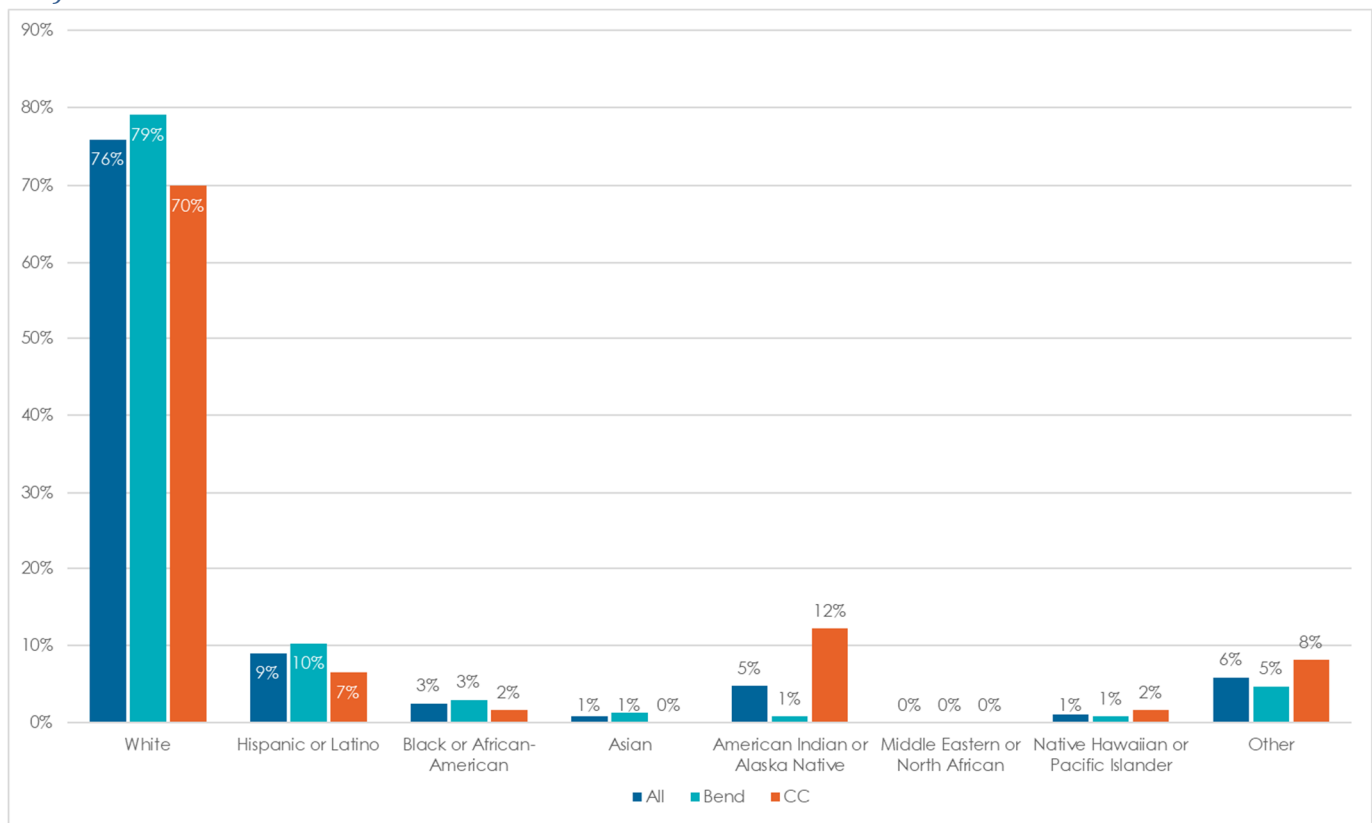


Figure 15: Race/Ethnicity of CET riders (All routes, Bend fixed-routes, Community Connector)

AGE

- ▶ Riders on Bend fixed-routes have a relatively even distribution of age ranges. The largest cohort of Bend fixed-route riders is those in the 25-34 age range.
- ▶ 42% of Community Connector riders are under the age of 18, and 83% of these riders are students.
- ▶ Only approximately 10% of riders are 65 or older.

Q14: How old are you?

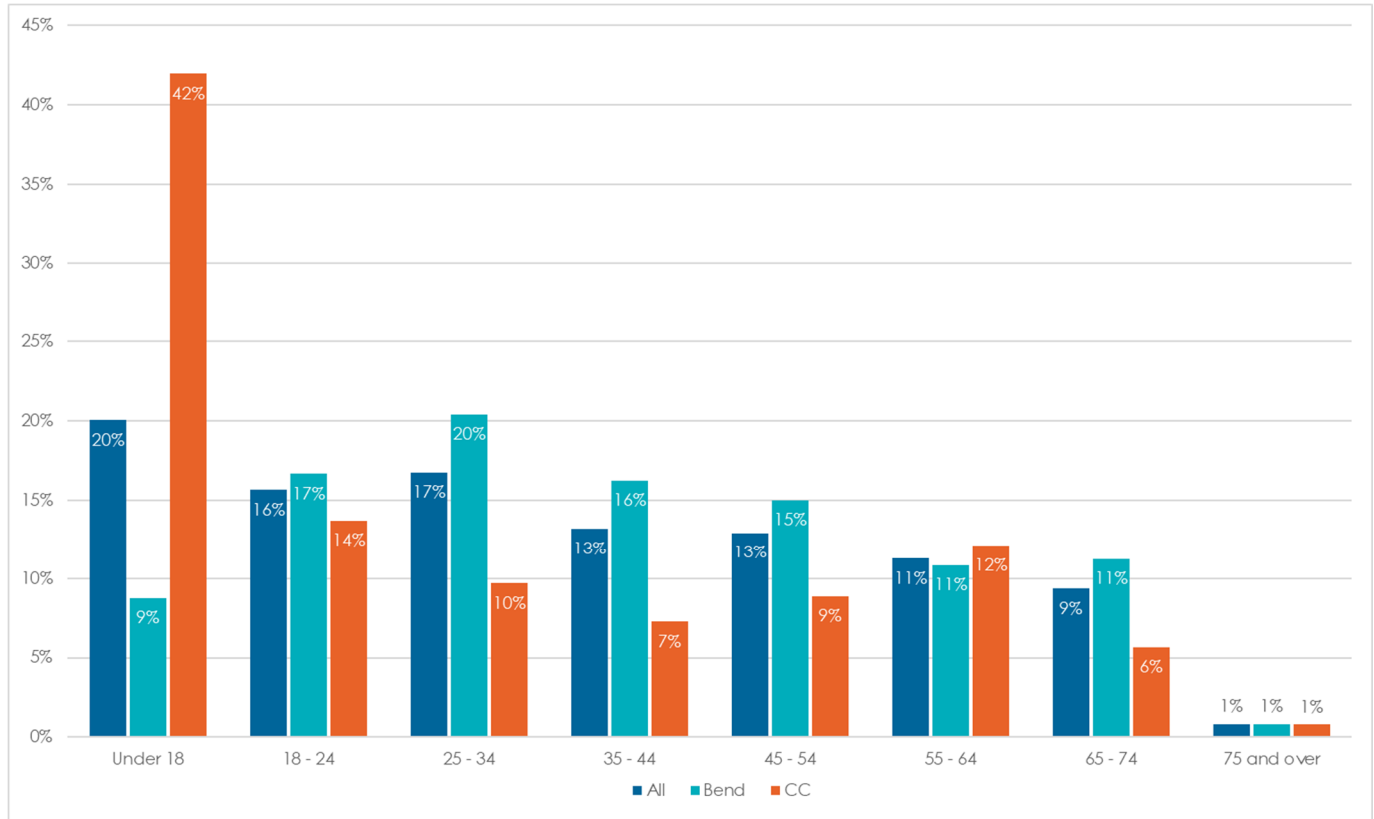


Figure 16: Age of CET riders (All routes, Bend fixed-routes, Community Connector)

EMPLOYMENT STATUS

Survey respondents were asked to identify their employment status (Figure 17). Highlights include:

- ▶ **A majority of Bend fixed-route riders are employed either full or part-time (including those who are self-employed).** Among employed riders, there is a nearly even split of part-time and full-time workers on Community Connector routes (15% and 14%, respectively). More riders on Bend fixed routes indicated that they worked full-time (28%) than part-time (20%).
- ▶ **A large percentage of riders surveyed on Community Connector routes are students (37%).** There is a much smaller, but still significant student population on Bend fixed-routes (17%) than on Community Connector routes (37%).
- ▶ 18% of Community Connector riders and 13% of Bend fixed-route riders are unemployed. 5% of those on Community Connector buses, and 7% of those on Bend fixed-routes indicated that they are unable to work.

- ▶ Just 10% of riders on Bend fixed-routes, and 7% of riders on Community Connector buses said that they were retired.

Q15: Employment status: Are you currently...? Overall Responses: (Choose all that apply) 365 (Bend Fixed-Route: 241, Community Connector: 124)

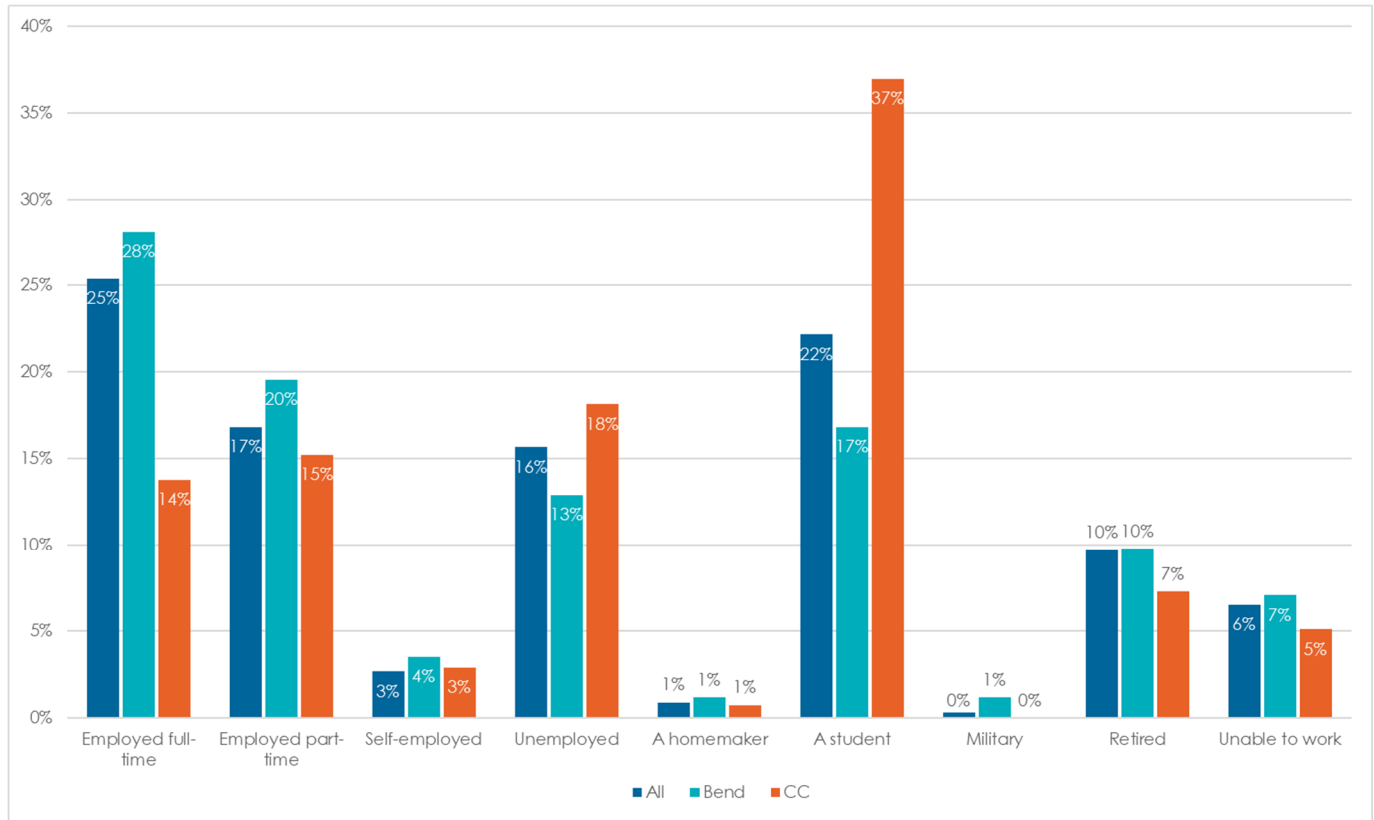


Figure 17: Employment Status of CET riders (All routes, Bend fixed-routes, Community Connector)

HOUSEHOLD INCOME

Survey respondents were asked to identify their household income (Figure 18).

- ▶ **Most riders (45%) report household earnings of under \$12,000 per year** (this is consistent between Bend fixed-route and Community Connector routes).
- ▶ The distribution of reported household income for Bend fixed-route and Community Connector riders mirror each other for most earnings brackets.

Q16: What is your household's annual income? Overall Responses: 304 (Bend Fixed-Route: 213, Community Connector: 91)

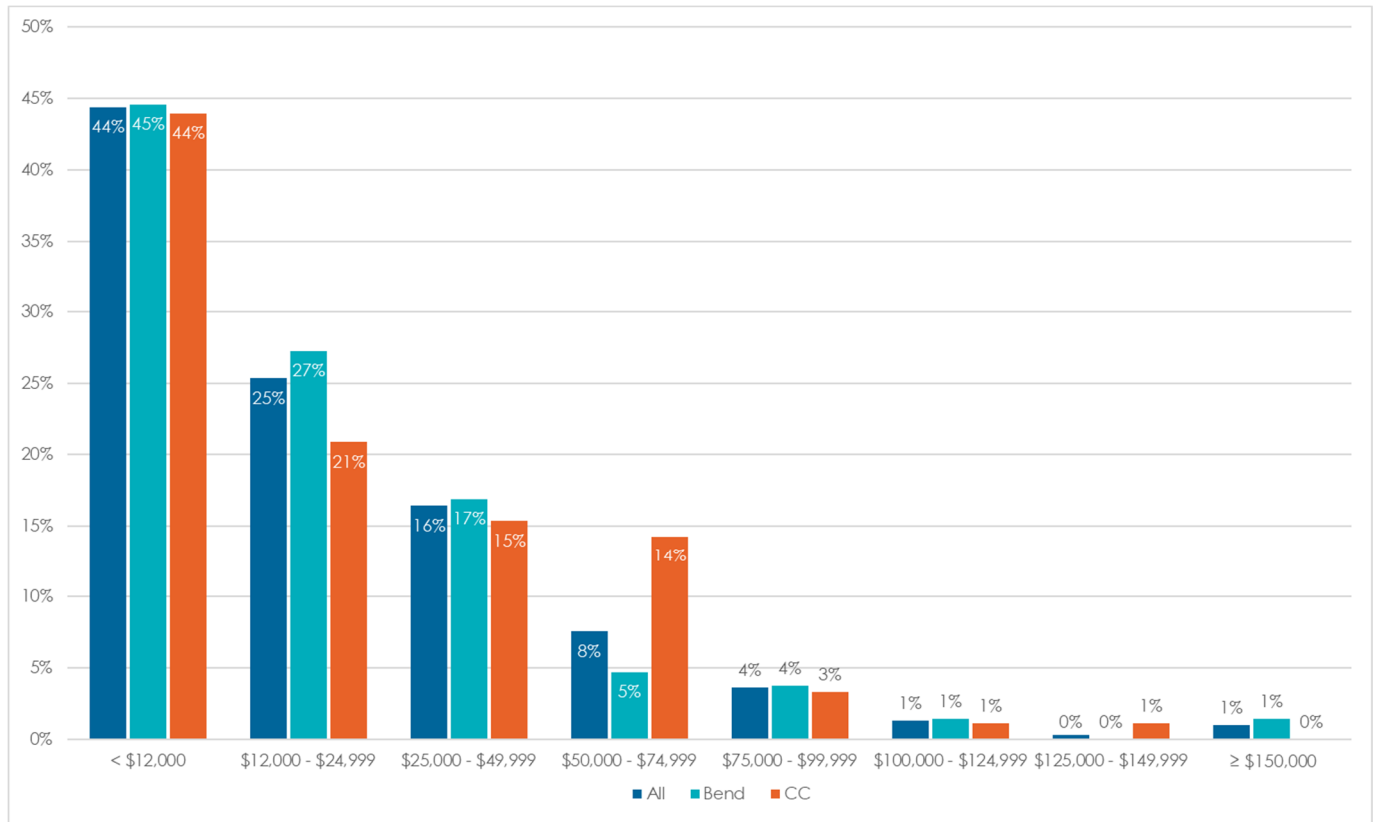


Figure 18: Household Income of CET riders (All routes, Bend fixed-routes, Community Connector)

VEHICLE OWNERSHIP

Surveyed riders were asked how many vehicles their household owns (Figure 19). Vehicle ownership tends to be higher among those surveyed on Community Connector routes than those surveyed on Bend fixed-routes. Other highlights include:

- ▶ **The majority of riders on Bend fixed-routes (53%), and 22% of those on Community Connector routes come from households that do not own a vehicle**, a sign of the mobility gap that CET fills for many riders.
- ▶ 40% of Community Connector survey respondents said that their household owned 2 vehicles, and another 17% said their household owned 3 or more vehicles. Only 11% of those on Bend fixed routes said that they came from a household with 2 vehicles available, and 8% indicated that their household owned 3 or more vehicles.
- ▶ Single-vehicle households are more common among Bend-fixed route riders (27%) than Community Connector riders (20%)

Q16: How many vehicles does your household own? Overall Responses: 360 (Bend Fixed-Route: 238, Community Connector: 122)

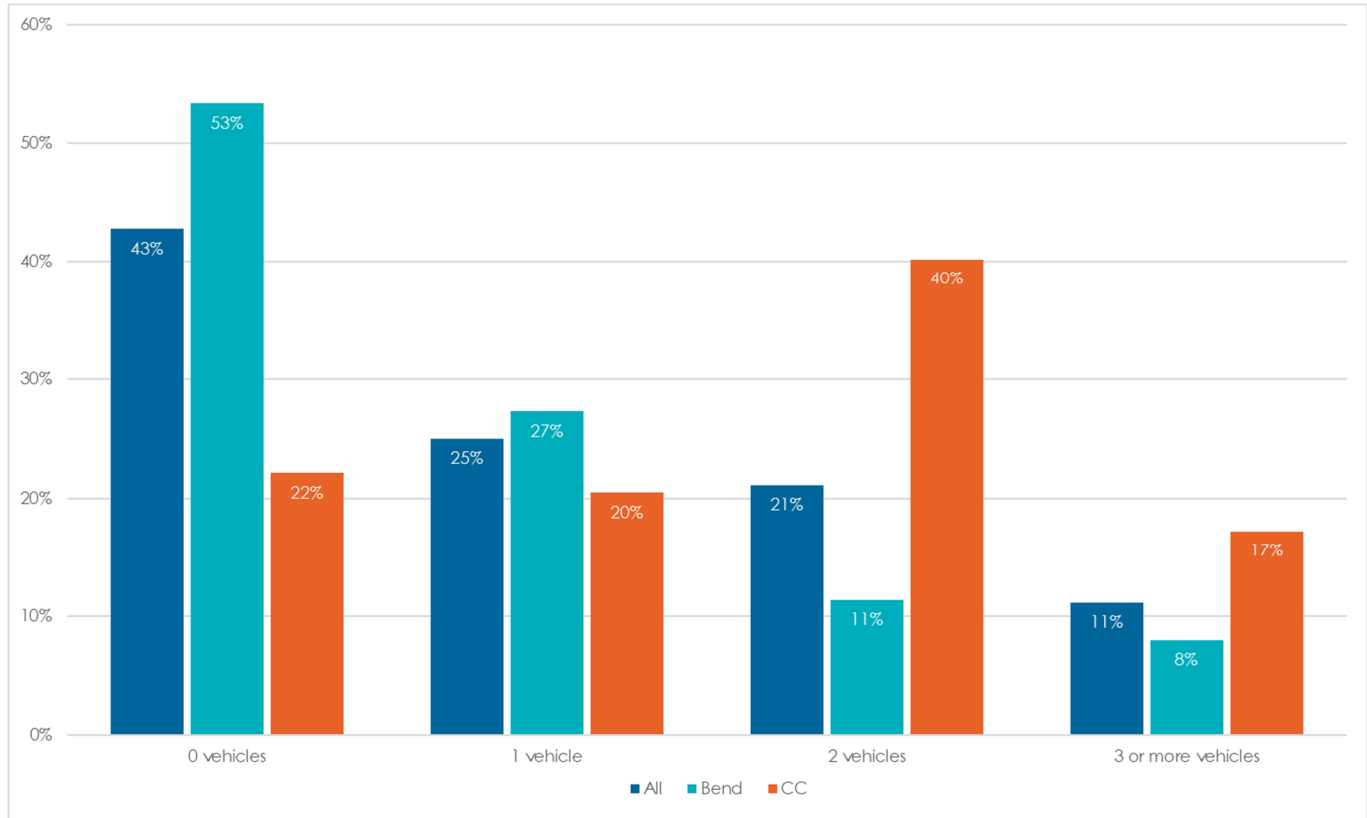


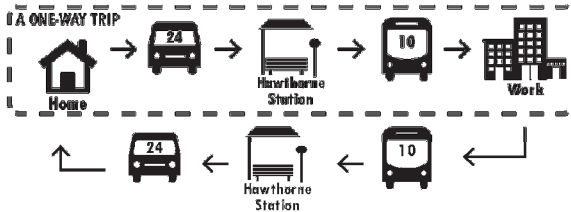
Figure 19: Vehicle Ownership Among CET Riders (Overall, Bend fixed-routes, Community Connector routes)

Appendix A On-Board Survey Instrument



2019 RIDER SURVEY

Thank you for participating in CET's 2019 rider survey. Please answer the following questions regarding this ONE-WAY portion of your trip.



Example: Your trip to work in the morning is a separate one-way trip from your trip back home in the evening.

1. What time did you board the bus you're riding now?

_____ AM PM

2. Which CET bus are you on right now?

- 1 (S. 3rd St) 4 (N. 3rd St) 7 (Greenwood)
- 2 (Brookwood) 5 (Wells Acres) 10 (Colorado)
- 3 (Newport) 6 (Reed Market) 11 (Galveston)
- 20 (Warm Springs/Madras) 28 (Redmond/Sisters)
- 22 (Redmond/Madras) 29 (Sisters/Bend)
- 24 (Bend/Redmond) 30 (La Pine/Bend)
- 26 (Redmond/Prineville)

3. Where did you board the bus you are on right now?

Cross streets: _____ & _____
E.g., Greenwood Ave & SE 27th Street
 or Address, Building, or Place: _____
E.g., COCC, Hawthorne Station
 City: 1 Bend 2 Redmond 3 Madras 4 Prineville
 5 Warm Springs 6 Sisters 7 La Pine 8 Other: _____

4. Where will you get off the bus you are on right now?

Cross streets: _____ & _____
E.g., Greenwood Ave & SE 27th Street
 or Address, Building, or Place: _____
E.g., COCC, Hawthorne Station
 City: 1 Bend 2 Redmond 3 Madras 4 Prineville
 5 Warm Springs 6 Sisters 7 La Pine 8 Other: _____

5. Which OTHER bus routes have you taken/will you take on this ONE-WAY trip? Mark all that apply.

- 1 (S. 3rd St) 4 (N. 3rd St) 7 (Greenwood)
- 2 (Brookwood) 5 (Wells Acres) 10 (Colorado)
- 3 (Newport) 6 (Reed Market) 11 (Galveston)
- 20 (Warm Springs/Madras) 28 (Redmond/Sisters)
- 22 (Redmond/Madras) 29 (Sisters/Bend)
- 24 (Bend/Redmond) 30 (La Pine/Bend)
- 26 (Redmond/Prineville) Local public bus (dial-a-ride)

6. How did you get to the first bus stop on this ONE-WAY trip?

- 1 Walked. *How many minutes?* _____
- 2 Wheelchair or scooter. *How many minutes?* _____
- 3 Bicycled. *How many miles?* _____
- 4 Drove a car. *How many miles?* _____
- 5 Rode with someone else.
- 6 Taxi, Uber, or Lyft
- 7 Other. Please specify: _____

7. How will you get from the final bus stop on this ONE-WAY trip to your destination?

- 1 Will walk. *How many minutes?* _____
- 2 Will use wheelchair or scooter. *How many minutes?* _____
- 3 Will bicycle. *How many miles?* _____
- 4 Will drive a car. *How many miles?* _____
- 5 Will ride with someone else.
- 6 Taxi, Uber, or Lyft
- 7 Other. Please specify: _____

8. What is the primary purpose of this trip? Select one.

- 1 Work/work-related 5 Shopping/library/errand
- 2 College/school (as a student) 6 Medical appointment
- 3 Recreation/social visit 7 Social services
- 4 Place of worship 8 Other: _____

9. What type of fare did you use for this ONE-WAY trip?

- 1 Cash
- 2 Paper fare (Day pass or monthly pass)
- 3 TouchPass card
- 4 TouchPass mobile app
- 5 Employee/student group pass

10. Did you pay a full or a discounted fare?

- 1 Adult full fare 3 Senior/disabled discount
- 2 Youth 4 Employee/student group pass program

11. How would you have made this trip if bus service were not available on this ONE-WAY trip?

- 1 I would not have made this trip 4 Bicycled
- 2 Walked 5 Driven a car
- 3 Carpooled, or dropped off 6 Taxi, Uber, or Lyft
- 7 Other. Please specify: _____

12. How often do you ride CET buses?

- 1 5 or more days per week 3 1 to 4 days per month
- 2 2 to 4 days per week 4 Less than 1 day per month

13. How long have you been riding CET buses?

- 1 More than 4 years 3 Less than 1 year
- 2 1 to 4 years 4 This is my first time



14. How old are you?

- 1 Under 18
- 2 18 to 24
- 3 25 to 34
- 4 35 to 44
- 5 45 to 54
- 6 55 to 64
- 7 65 to 74
- 8 75 or over

15. Employment status: Are you currently...?
(Choose all that apply)

- 1 Employed full-time
- 2 Employed part-time
- 3 Self-employed
- 4 Unemployed
- 5 A homemaker
- 6 A student
- 7 Military
- 8 Retired
- 9 Unable to work

16. What is your household's annual income?

- 1 Less than \$12,000
- 2 \$12,000 to \$24,999
- 3 \$25,000 to \$49,999
- 4 \$50,000 to \$74,999
- 5 \$75,000 to \$99,999
- 6 \$100,000 to \$124,999
- 7 \$125,000 to \$149,999
- 8 \$150,000 or more

17. How many vehicles does your household own?

- 1 0 vehicles
- 2 1 vehicle
- 3 2 vehicles
- 4 3 or more vehicles

18. What is your race or ethnicity? (Choose all that apply.)

- 1 White
- 2 Hispanic or Latino
- 3 Black or African-American
- 4 Asian
- 5 American Indian or Alaska Native
- 6 Middle Eastern or North African
- 7 Native Hawaiian or other Pacific Islander
- 8 Other (please specify) _____

19. Please rate your perception of CET bus service.

	Excellent	Good	Fair	Poor	No opinion
a. Bus arrives on time	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
b. Bus goes where I want to travel	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
c. Timing and reliability of transfers	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
d. Usefulness of maps/schedules	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
e. System is easy to understand	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
f. Cleanliness of vehicles	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
g. Availability of seats on bus	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
h. Driver courtesy	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
i. Condition of bus stops	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
j. OVERALL bus service	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

20. Please identify up to THREE improvements that would help you choose to ride the bus more often.

Service in Bend:

- 1 More frequent weekday service. Which route(s)? _____
- 2 Earlier morning weekday service. Start when? _____
- 3 Later evening weekday service. Until when? _____
- 4 Longer Saturday hours (earlier and/or later)
- 5 New routes/stops. Where? _____

Community Connector service:

- 6 More frequent morning and afternoon trips
Which route(s)? _____
- 7 More midday trips Which route(s)? _____
- 8 Later evening trips. Time? _____
- 9 Service on Saturdays
- 10 New routes/stops. Where? _____
- 11 Ensure that buses run on time more often
- 12 More service in other cities. Please describe? _____
- 13 Other. Please specify: _____

21. Please circle the ONE improvement in #20 that you think is the most important. (Circle your choice above.)

Thank you for your participation in this survey! Your responses are completely anonymous.

If you have any additional suggestions for how we could improve our service, please write them on the lines below.

Thank you!

Appendix B Operator Survey Results



OPERATOR SURVEY RESULTS

Date: September 23, 2019 Project #: 22857
To: Cascades East Transit Master Plan, Project Management Team
Subject: CET Operator Survey Results (CET TMP Task 4.3)

TABLE OF CONTENTS

Introduction.....1
Operator Survey Results Analysis2

INTRODUCTION

This memo summarizes the results of the operator surveys conducted on the CET Fixed-Route System in Bend and the regional Community Connector system between May 8 and June 3, 2019. The following list highlights participation and results of the surveys:

- ▶ 26 operators participated in the operator survey: 4 dial-a-ride, 9 fixed-route, 4 Community Connector, 6 all, 3 other, and 1 did not specify
 - ▶ More than half (54%) of participating operators have worked at CET for one to five years
 - ▶ Slightly more operators are part time (42%) than full time (38%); of the part-time operators, one (1) driver operates dial-a-ride buses and 13 drivers operate fixed-route, community connectors, or recreational buses, and of the full-time operators, four (4) drivers operate dial-a-ride buses and eight (8) drivers operate fixed-route and community connector buses.
 - ▶ Thirty-one percent of drivers operate the Bend fixed-routes
 - ▶ The top locations identified by operators as difficult to navigate are Courtney Drive (Route 7 and dial-a-ride), left turns at Wells Acres/Butler Market and Jamison Rd/Highway 20
 - ▶ Bend fixed-route 4 was identified as the most difficult route to keep on schedule (39% of answers)
 - ▶ A majority of passengers' suggestions to drivers (45%) included adding or modifying routes and providing on-time service
 - ▶ The top destinations that operators suggest CET should serve are Empire Ave (13%), Deschutes River Woods (15%), and Redmond with fixed-route service (8%)
 - ▶ The top capital, infrastructure, and technology needs identified by operators were stop amenities (11%), trash and shelter maintenance at stops (9%), and new/improved radios (9%)
 - ▶ Approximately 42% of operators feel securing passenger wheelchairs is somewhat difficult to difficult
 - ▶ Approximately 46% of operators feel handling difficult rider behavior is somewhat difficult to difficult
 - ▶ Approximately 58% of operators feel taking scheduled breaks is somewhat difficult to difficult

- ▶ Approximately 62% of operators feel maintaining on-time performance is somewhat difficult to difficult
- ▶ Approximately 38% of operators feel coordinating with dispatch and CET staff is somewhat difficult to difficult
- ▶ Half of operators indicate that scheduling and breaks are fair to poor for them
- ▶ Approximately 65% of operators indicate that dispatch works fair to poor for them
- ▶ Thirty-three percent of operators indicate that the CET service area that most needs additional funding is additional routes
- ▶ The top number one recommendation made by participating operators is that all Bend fixed-routes have 35 to 45-minute runs (Routes 1, 3, 4, and 7 on 30-minute runs for weekday schedule)

OPERATOR SURVEY RESULTS ANALYSIS

The operator survey asked CET bus drivers questions within the following categories of CET's service and their experience in these areas:

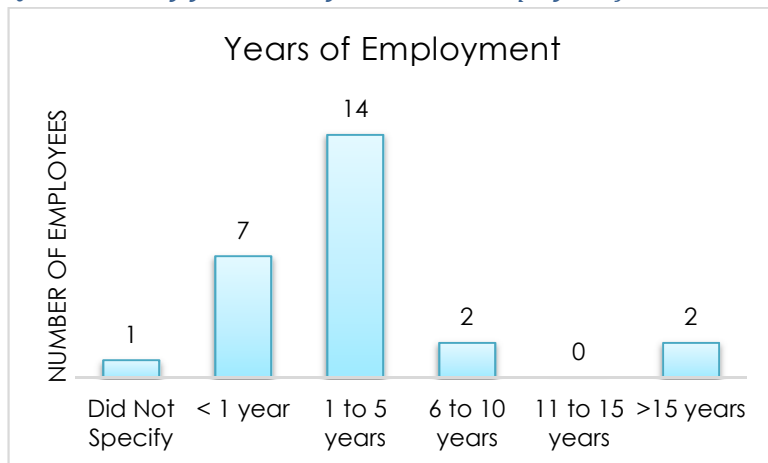
- ▶ General information
- ▶ Planning considerations
- ▶ Operations
- ▶ Future funding opportunities
- ▶ Overall recommendations

A copy of the operator survey and raw results are attached to the end of this memo. The following sections provide detail on questions asked and summarize the findings from these interviews.

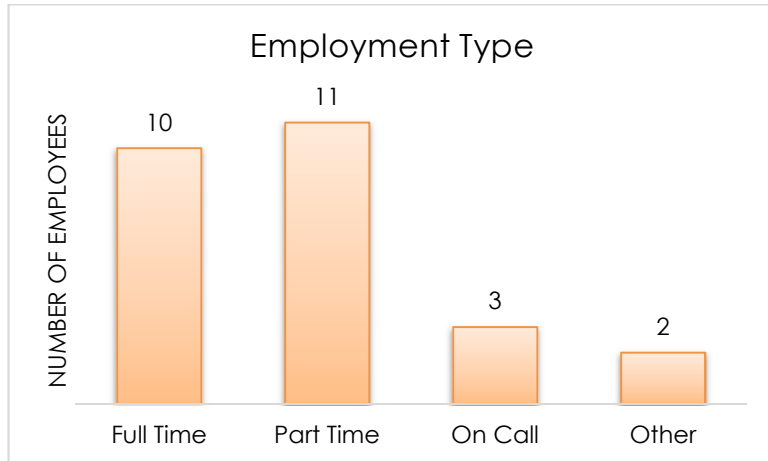
GENERAL INFORMATION

Survey questions about general information included queries on years of employment, type of employment, and typical routes driven. Following are the questions and their respective results.

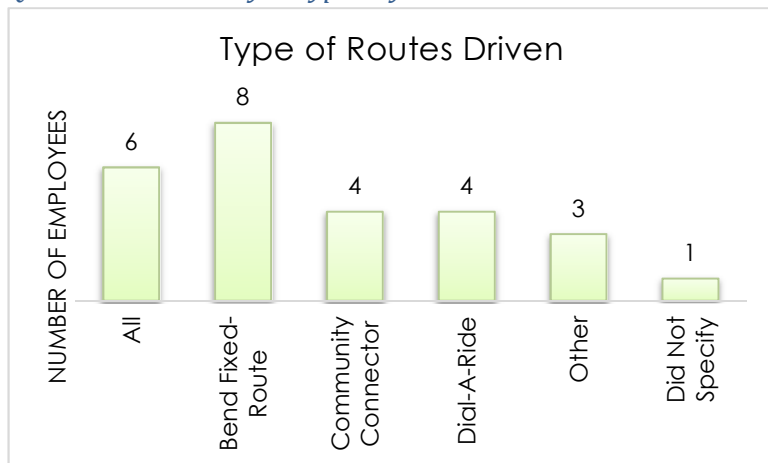
Q1: How many years have you been an employee of Cascades East Transit or Paratransit Inc.?



Q2: Are you a full-time or part-time employee?



Q3: What routes do you typically drive?



PLANNING CONSIDERATIONS

Survey questions about planning considerations included queries on subjects such as routes difficult to navigate, on-time performance, passenger recommendations, destinations needing service, and needs outside of service (e.g. capital, infrastructure, technology, etc.). Following are the questions and their respective results.

Q4: Are there streets, intersections, or turns that are difficult to navigate? If so, which ones?

The top locations identified by operators were Courtney Drive for Route 7 and Dial-A-Ride operators and making left turns at Wells Acres/Butler Market and Jamison/Highway 20 for Bend Fixed-Route operators.

Other answers included the following locations:

- ▶ DAR: NE Conners Ave, SW Chandler Ave, SW Yates Dr, NE Lotus Dr, NE Watt Way, NE Bellevue Dr/Grand Way VA Clinic, 1st Street/SE Veterans (Redmond), and driveways (entering/exiting)

- ▶ Bend Fixed-Route: Bond St/Franklin Ave (right turn), 5th St (route 5), from NE Lafayette Ave to far left lane back to Hawthorne Station, Hawthorne Street/Hawthorne Station (heavy traffic), NE Wells Acres Rd, NE Studio Rd/NE 4th St, NW Wall St, Route 4 stop at Cascade Village, 4th St (right turn), Hill St (right turn), US 97 southbound/Hawthorne St (right turn), Medical areas (parking and navigation), US 97/Cascade Village area, Nels Anderson Rd (from right to left turn lane), NE Franklin Ave/NE 4th St
- ▶ Some operators did not specify or had no difficulties

Q5: Are there routes where it is difficult to stay on schedule? If so, where/when do you fall behind? Are there routes/stops where there is too much time allocated on the schedule?

Thirty-nine percent of the answers identified Bend Fixed-Route 4 as the most difficult to keep on schedule. Many suggested lengthening the run time to 45 minutes and modifying the route to exclude the left-turn movement from Jamison Rd to Highway 20.

Other answers included the following routes:

- ▶ Bend Fixed-Route: Route 1, 2, 3, 7, and 11; some respondents identified “All Routes” being difficult to keep on schedule
- ▶ Community Connector: Route 28 (Sisters-Redmond)
- ▶ Other operators either did not specify, had no difficulties, or mentioned other services

Q6: What comments/suggestions/recommendations do you hear from your passengers?

A majority of passengers (45%) suggested adding or modifying routes (25%) and providing on-time service (20%).

Other answers included the following suggestions:

- | | |
|--|---|
| <ul style="list-style-type: none"> ▶ Improve roadway pavement condition ▶ Provide Sunday services ▶ Provide later service hours ▶ Install covered shelters ▶ Include air condition and heating on buses ▶ Clean buses ▶ Improve transfers at Hawthorne ▶ Modify confusing Saturday schedules | <ul style="list-style-type: none"> ▶ Provide weekend service for Community Connectors ▶ Increase Saturday service frequency ▶ Provide more dial-a-ride service in Sisters ▶ Implement fixed-route service in Redmond ▶ Eliminate incorrect drop-off locations for DAR ▶ Improve DAR dispatch/scheduling |
|--|---|

Q7: Are there any destinations or areas that CET should serve, but does not currently?

The top destinations that drivers suggested CET should serve were Empire Ave (13%), Deschutes River Woods (15%), and Redmond with fixed-route service (8%).

Other answers included the following suggestions:

- | | |
|---|--|
| <ul style="list-style-type: none"> ▶ Murphy Rd ▶ Reed Market (where not served) | <ul style="list-style-type: none"> ▶ American Ln/Brosterhous Road ▶ River Woods Dr |
|---|--|

- ▶ Kiowa Rd
- ▶ Brookwood (where not served)
- ▶ Northwest Crossing
- ▶ Wilson Ave
- ▶ Boyd Acres
- ▶ NE 18th St
- ▶ Bend-Prineville Community Connector
- ▶ Redmond Community Connector Stops (possibly additional)
- ▶ Powell Butte (weekends)
- ▶ Sisters (fixed-route service?)
- ▶ New SE High School

Q8: Are there capital, infrastructure, or technology needs (e.g. shelters, vehicles, communications, etc.) that are not being met?

The top capital, infrastructure, and technology needs identified by operators were stop amenities (e.g. lighting, shelters or larger shelters, benches, signs, etc.) (11%), trash and shelter maintenance at stops (9%), and new or improved radios (9%).

Other answers included the following suggestions:

- ▶ Communications
- ▶ Winter traction tires for DAR
- ▶ Proper microphones (e.g. Gillig)
- ▶ Automated stop announcements and displays
- ▶ More driver seat space
- ▶ More consistent bus maintenance
- ▶ Tablet software and app maintenance
- ▶ Overcrowded traffic at Hawthorne
- ▶ Loading ramps (not wheelchair ramps)
- ▶ Transit hub amenities (e.g. garbage cans, clean bathrooms)
- ▶ Breaks for all routes
- ▶ Base staff training of operator duties and responsibilities

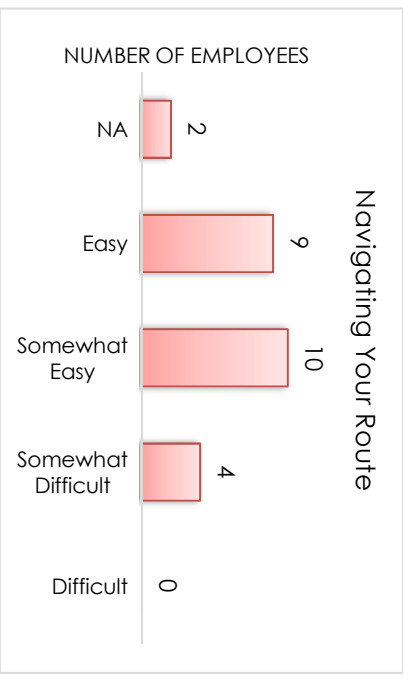
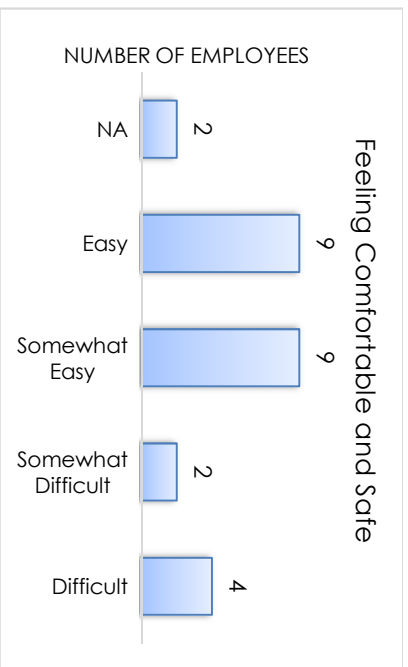
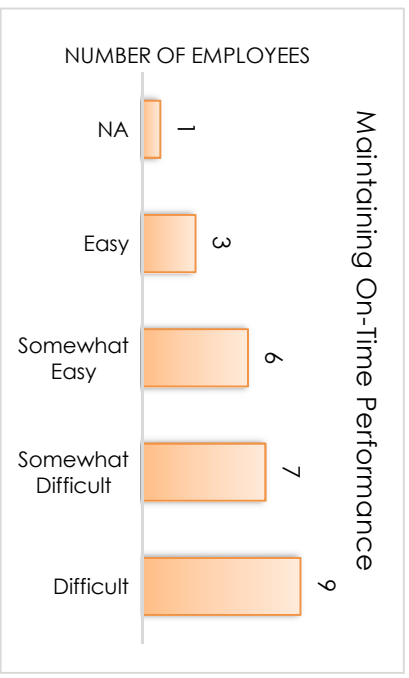
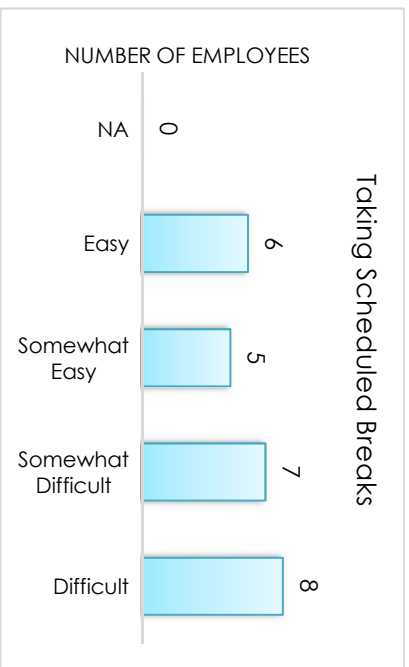
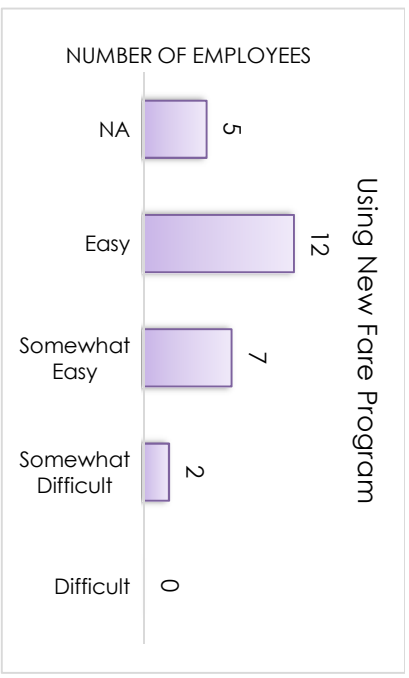
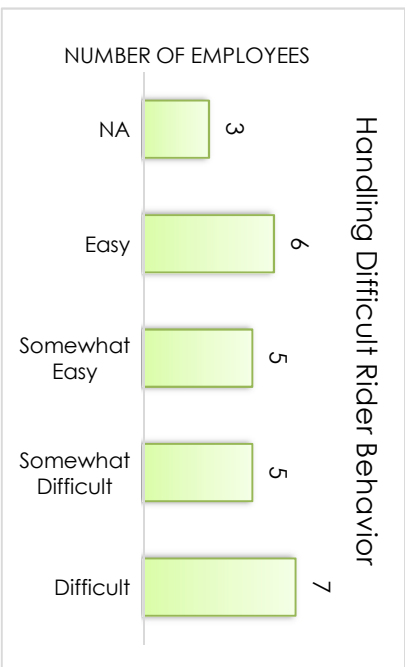
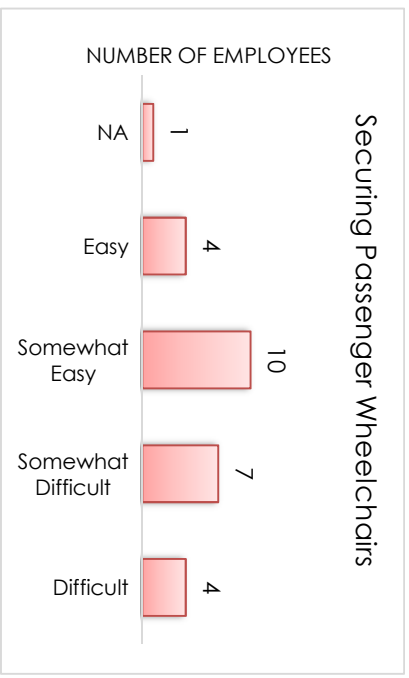
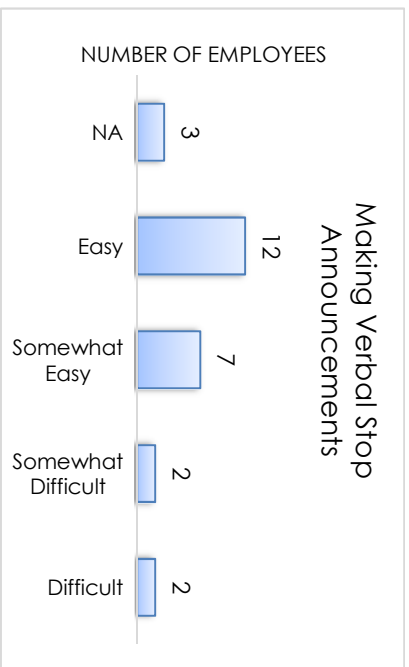
OPERATIONS

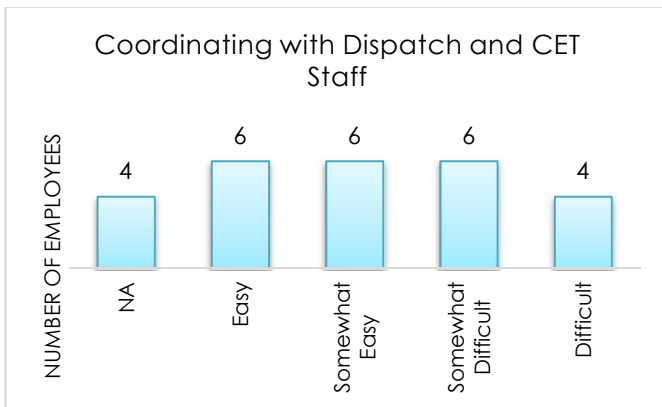
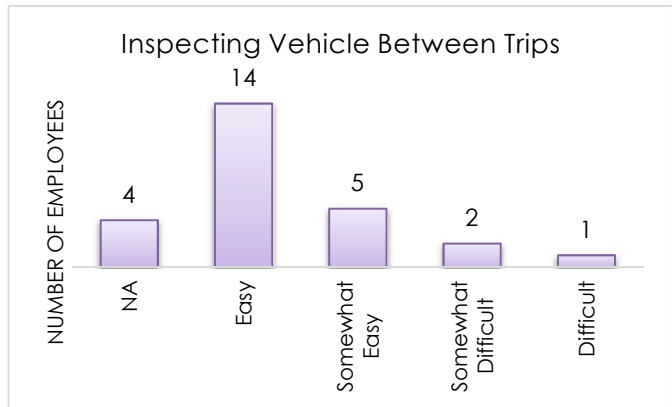
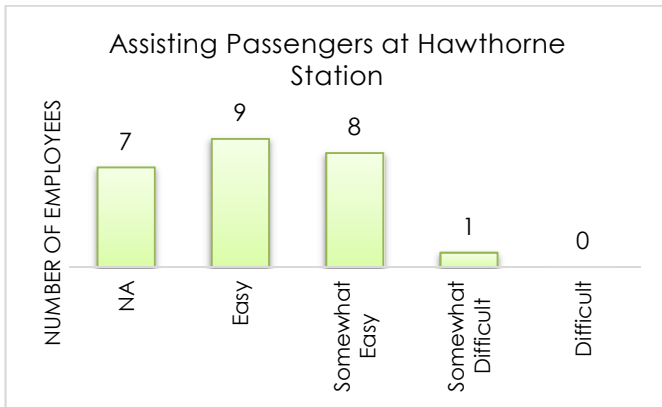
Survey questions about operations included queries on subjects such difficulty of conducting specify job tasks, scheduling and breaks, and the current dispatch system and scheduling. Following are the questions and their respective results.

Q9: Please rank on a scale from 1 to 4 the ease or difficulty of conducting the following tasks of your job (1: easy, 2: somewhat easy, 3: somewhat difficult, 4: difficult):

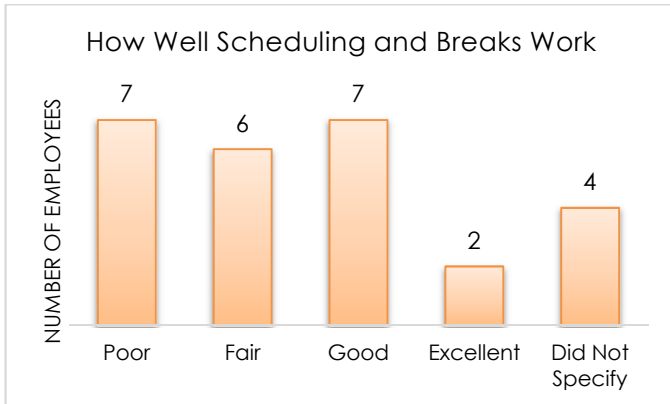
- ▶ Making verbal stop announcements
- ▶ Securing passenger wheelchairs
- ▶ Handling difficult rider behavior
- ▶ Using the new fare program
- ▶ Taking scheduled breaks
- ▶ Maintain on-time performance
- ▶ Feeling comfortable and safe on the bus
- ▶ Navigating your route (which section of your route is most difficult?)
- ▶ Assisting passengers at Hawthorne Station
- ▶ Inspecting your vehicle prior to and following a trip
- ▶ Coordinating with dispatch and CET staff

The following series of charts illustrate operator difficulty rankings of the tasks listed above.

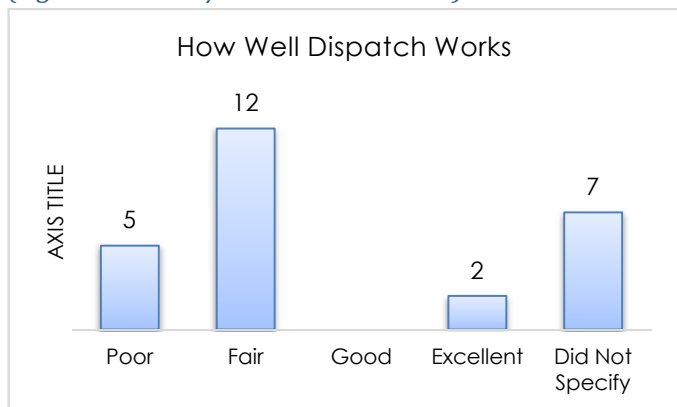




Q10: How well do the scheduling and breaks work for you?



Q11: How well does the dispatch system work? Are trips scheduled efficiently? What challenges do you perceive? (e.g. Paratransit/Dial-A-Ride drivers)



The following list provides perceived problems noted by operators:

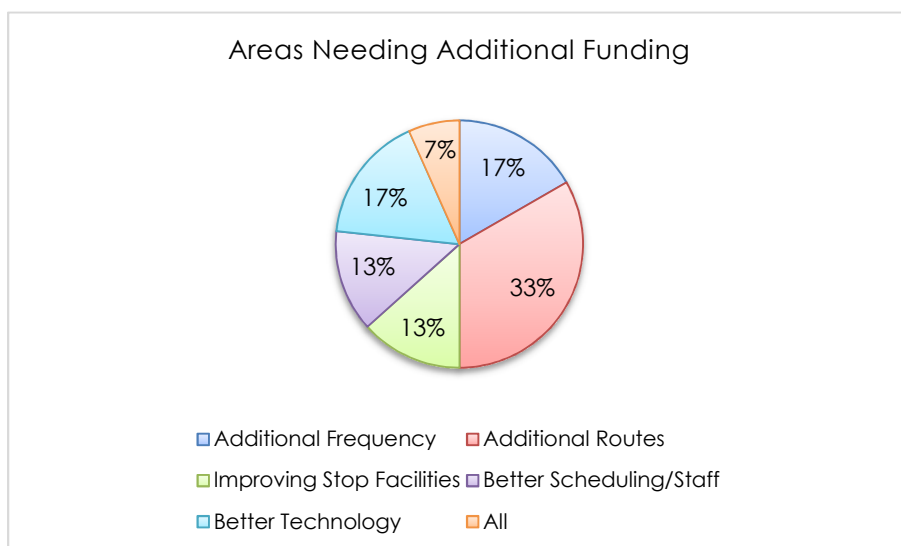
- ▶ Radios are problematic; difficult to hear
- ▶ Fixed-route and DAR should be on separate channels
- ▶ Rides not scheduled by geography, but by time
- ▶ DAR sometimes not laid out efficiently; insufficient time allocated
- ▶ Requesting log in/log out (?) when operators are dealing with passengers and traffic
- ▶ Dispatchers do not listen to operators; buses cannot divert down most side streets
- ▶ When operators need police assistance, dispatch should help and not put the responsibility on the operator
- ▶ Unnecessary radio use

FUTURE FUNDING OPPORTUNITIES

The following question was asked regarding future funding opportunities; included are respective answers.

Q12: If additional funding became available, what area of transit would you think would need it the most?

- ▶ Additional Routes
- ▶ Additional Frequency
- ▶ Improving Stop Facilities
- ▶ Better Technology
- ▶ Better Scheduling/Staff



OVERALL RECOMMENDATIONS

Operators were asked to provide their number one recommendation to improve overall service. Many operators had multiple answers represented below.

Q13: What would be your number one recommendation to improve overall service?

The following are top suggestions made by operators:

- ▶ Change all Bend fixed-routes to 35- to 45-minute runs
- ▶ Eliminate the paired routes on Sunday; run like weekday schedules
- ▶ Clean buses
- ▶ Train the route schedulers to be more efficient and have office staff out in the field during peak times more often

Other answers included the following suggestions:

- ▶ **Maintenance**
 - ▶ Provide regular year-round maintenance (e.g. filters, AC, bike racks)
 - ▶ Provide better winter maintenance (e.g. wipers, heaters, tires, drop downs, leaks, gaskets)
 - ▶ Complete major repairs quicker
 - ▶ Removing damaged vehicles from street and repairing quickly
- ▶ **Capital**
 - ▶ Provide more buses to run more frequently
 - ▶ Install better driver and bus seats
 - ▶ Utilize Gillig vehicles on Route 4
 - ▶ Install bike racks that fit larger bikes and bike tires
- ▶ **Infrastructure**
 - ▶ Install larger transit stop signs
 - ▶ Build more shelters at bus stops
- ▶ **Service**
 - ▶ Provide on-time performance
 - ▶ Expand routes
 - ▶ Move stops to safer locations
 - ▶ Remove left turns from routes
 - ▶ Improve streets, stops, and traffic enforcement; clear visual hazards
 - ▶ Pay respect to customers and vice versa
- ▶ **Operations**
 - ▶ Adhere to CET Snow Supervisor's call for snow schedule
 - ▶ Promote cooperation between CET staff and Paratransit staff
 - ▶ Implement mechanic repairs, maintenance, and cleaning night shifts
 - ▶ Pay Bachelor drivers during down time waiting at Bachelor
 - ▶ Providing 30 minutes to Paratransit drivers prior to starting route
 - ▶ Have a supervisor present at Bear Creek until all buses get back at end of day
 - ▶ Provide security at Hawthorne Station until all buses leave at end of day
 - ▶ Provide breaks for all routes
- ▶ **Technology**

- ▶ Updated technology (e.g. radios, computers, tablets, and Friendly Ride buses)
- ▶ **Education**
 - ▶ Educate passengers on transit service to improve efficiency (e.g. fares ready, seated quickly, prompt bike loading)

Attachment A Operator Survey



OPERATOR SURVEY

Project: 2040 CET Transit Master Plan

Subject: Operator Survey

Please respond to the following questions. Your input is valuable and will ultimately be used in the development of the 2040 CET Transit Master Plan.

GENERAL INFORMATION

1. How many years have you been an employee of Cascades East Transit or Paratransit Inc.?
2. Are you a full-time or part-time employee?
3. What routes do you typically drive?

PLANNING CONSIDERATIONS

4. Are there streets, intersections, or turns that are difficult to navigate? If so, which ones?
5. Are there routes where it is difficult to stay on schedule? If so, where/when do you fall behind? Are there routes/stops where there is too much time allocated on the schedule?

6. What comments/suggestions/recommendations do you hear from your passengers?

7. Are there any destinations or areas that CET should serve, but does not currently?

8. Are there capital, infrastructure, or technology needs (e.g. shelters, vehicles, communications, etc.) that are not being met?

OPERATIONS

9. Please rank on a scale from 1 to 4 the ease or difficulty of conducting the following tasks of your job (1: easy, 2: somewhat easy, 3: somewhat difficult, 4: difficult):

- ▶ Making verbal stop announcements _____
- ▶ Securing passenger wheelchairs _____
- ▶ Handling difficult rider behavior _____
- ▶ Using the new fare program _____
- ▶ Taking scheduled breaks _____

- ▶ Maintaining on-time performance _____
- ▶ Feeling comfortable and safe on the bus _____
- ▶ Navigating your route _____
 - ▶ Which section of your route is most difficult?
- ▶ Assisting passengers at Hawthorne Station _____
- ▶ Inspecting your vehicle prior to and following a trip _____
- ▶ Coordinating with dispatch and CET staff _____

10. How well do the scheduling and breaks work for you?

11. How well does the dispatch system work? Are trips scheduled efficiently? What challenges do you perceive? (e.g. Paratransit/Dial-A-Ride drivers)

FUTURE FUNDING OPPORTUNITIES

12. If additional funding became available, what area of transit would you think would need it the most (fill in one bubble)?

- Additional Routes
- Additional Frequency
- Improving Stop Facilities
- Better Technology
- Better Scheduling/Staff

OVERALL RECOMMENDATIONS

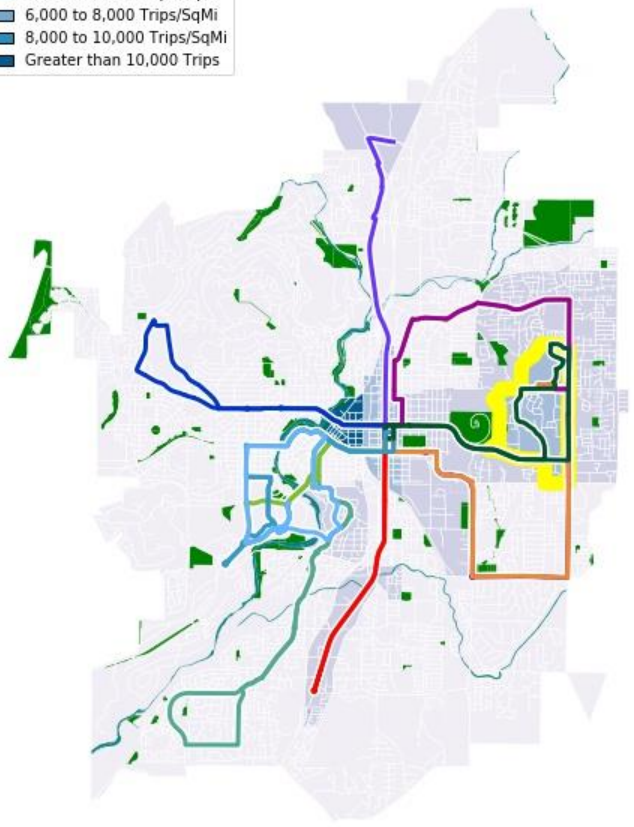
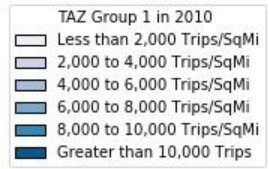
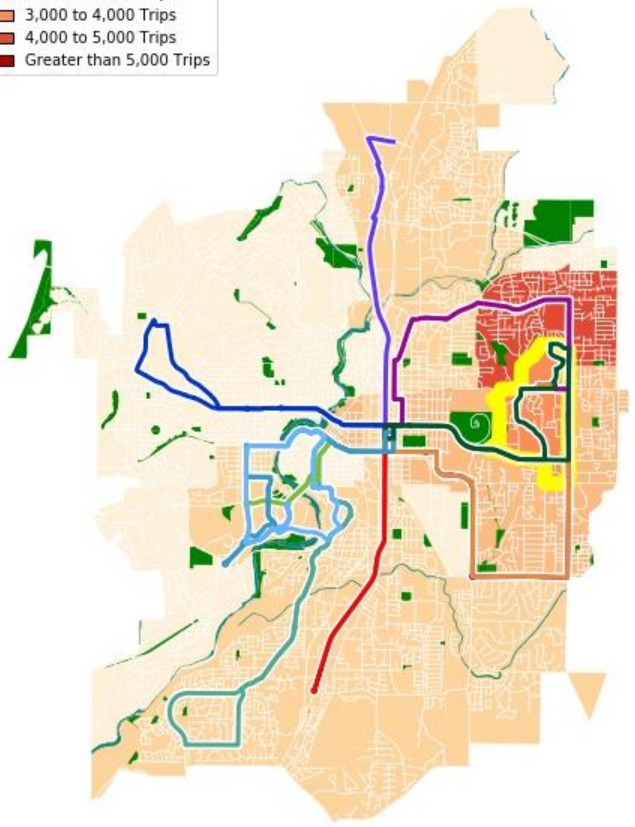
13. What would be your number one recommendation to improve overall service?

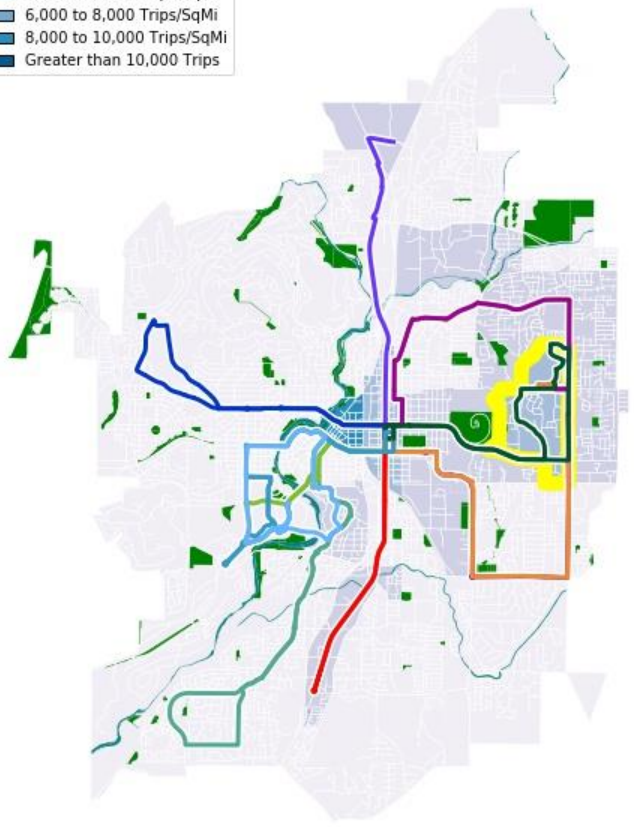
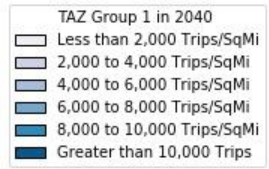
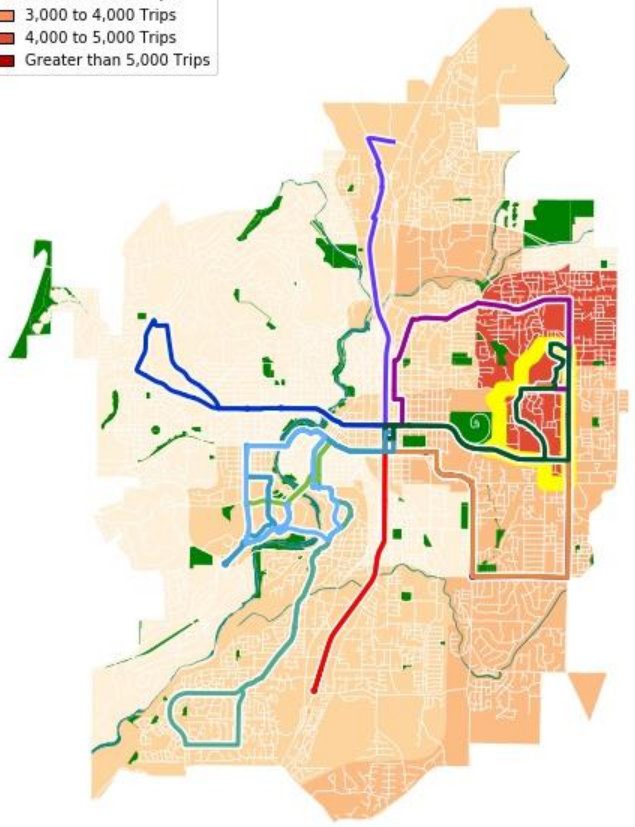
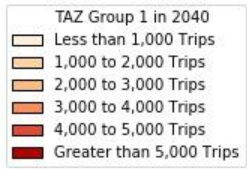
Attachment B Raw Survey Results

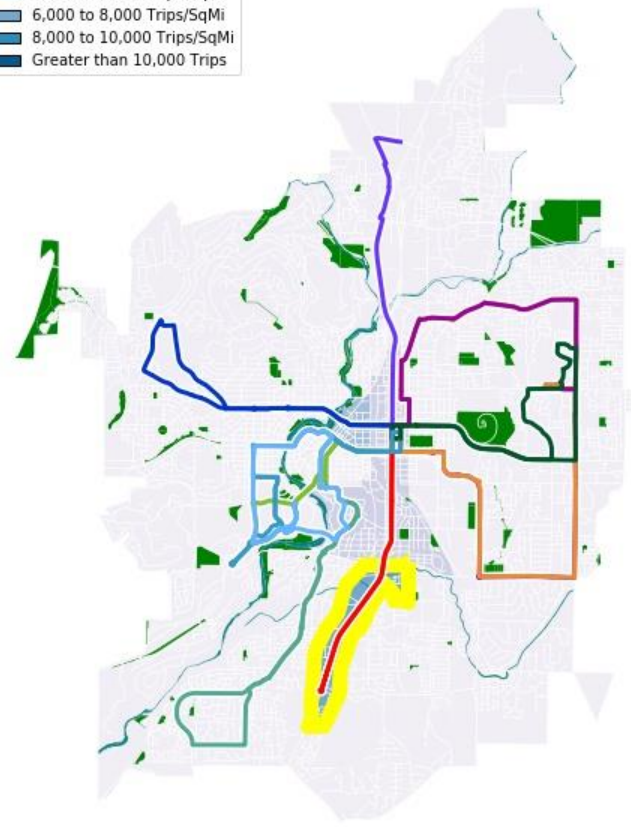
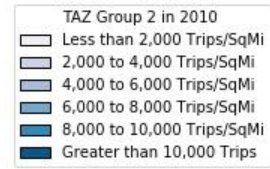
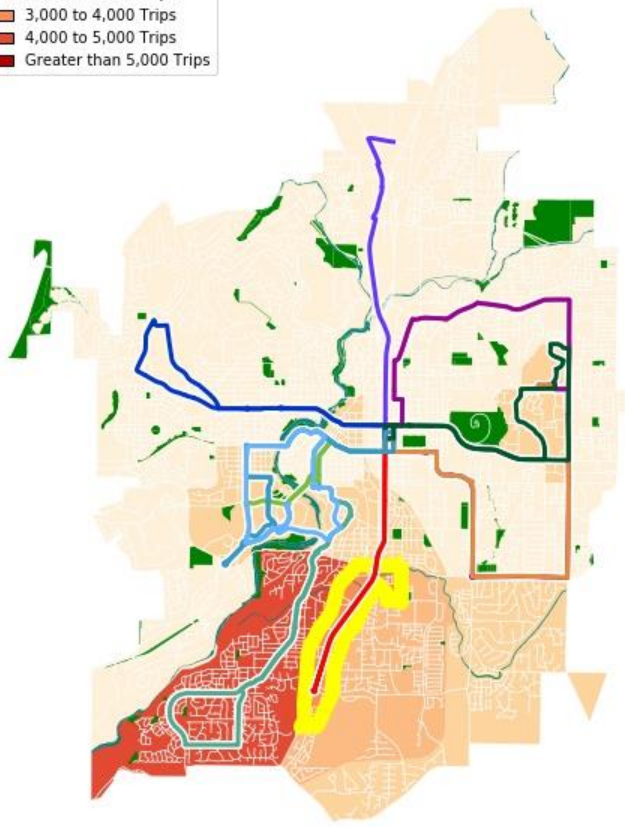
1. How many years have you been an employee	17.5 years	2 years	2 years	< 1 year	A bit over 2 years	2 years	7 years	3.5 years	9.5 years		2 years
2. Full or Part Time	Full time	Full time	Part time	Part time	Part time	On Call	Full Time	Yes	Full time	Full time	Full time
3. What Route(s)	Shift 6 Dial-A-Ride	1, 4, 7, 10, 5, 2	ALL	All routes	1P, 4P, and sometimes all other, and shadow/break	ALL	DAR shift 5	All	5 and 6		3, 1, 6, 11/7
4. Difficult to Navigate	Courtney Dr.; Chandler; Yates	Right turn on Bond and Franklin. Left turn on off Wells Acres to Butler Market		5th St. on RT 5 the parking on both sides of street make a narrow path, this during school hours is worst for 2-way traffic.	The left turn from Jamison on to HWY 26 to get to Robal and Hunnel RT 4. Lafayette to far left lane to get in turning lane back to Hawthorne Station. Rt 4. Hawthorne Street at Station too much other traffic	Jamison on Route 4, especially when turning on to HWY 20	Courtney-Conners, Lotus, Watt Wat between Medical Center and Mary Rose, Bellview need a stop sign at corner of Bellview and Grand Way VA Clinic has an island that need removed.	VA/Wells Acres	Butler Market and Wells Acres	Franklin at Bond. Right turn from Bond. RT 2 and 10 Courtney off 27th needs to be eliminated. RT 7 1 way traffic is not safe for a bus. Trying to make a left turn onto HWY 20 from Sheriff's office is extremely dangerous and time consuming, RT 4.	Wells Acres and Butler Market, Studio and 4th
5. Difficult to Stay on Schedule	I drive a Dial-A-Ride but I drove the Fixed Routes for 3 years when we started in 2006. Back then NONE of the routes worked on a 30 min pulse. It was changed to a 40 min which worked for most of them.	RT 4 falls behind stops and left turn on highway 20.	RT 4 too far, too much traffic, too many stops to be a 30 minute route. Should be 45.	RTs 1 & 4 3rd St. North and South. Traffic is worst between 11 AM and 5 PM that's when it is difficult to stay on schedule. No!	Yes RT 4. Sometimes RT 1 -> about 3:30 to 5:30 at Reed Market traffic North and South, mainly South. RT 4 always behind ridership-people who carry everything they own and then can't find their ticket. Empire - getting back from Jamison cross HWY 26 back to Robal and Hunnel. The left lane when you have a drop off coming into Hawthorne at the Lafayette stop then trying to get to far left lane to turn. I think better if we just continue to go up to Franklin turn left then left at 4th to come in for RT 4 at Hawthorne.	Route 4 P is the most difficult to stay on schedule due to traffic, traffic lights, and amount of passengers!	DAR Daily. Scheduling is still not allowing enough time for pick up and drop off. Traffic has increased dramatically in Bend over the past 7 years. Still working on some time frames as when I started. 10 minutes is not enough time to drive across town pick up and unload and make it to next pick up. 3 and 4 minutes will never work.	Route 4 Jameson to Robal. Route 10 can go to Mt. Washington	5 and 6 pretty much stay on time.	Every route has its issues depending on time of day, traffic, weather, ridership. RT 1, RT 4, RT 3, RT 7, RT 11	All routes traffic is getting very bad. The 20 minute routes I drive are easy to stay on time in the AM for me. As noon comes along so does the traffic. That's when I've noticed I can stay on time if I don't have to stop for anybody. That defeats the purpose of us being out there providing a service.
6. Passenger Suggestions	Fix the potholes and cracks in pavement	Make RT 4 a 45 minute route. Be on time.	Can't make connections when behind schedule	More routes, on time service, later hours	There should be covered shelters at all bus stops. buses should run on Sundays. Customers complain about buses being late for their appointments.	Complaints about making transfers at Hawthorne	Quit calling DAR riders and giving them a pick up time. Dispatch is constantly movin pick up times. To opening window and riders are missing ride as a result. Just tell them they have to be ready 1 hour before drop off time.	Make Route 4 a 45 minute run. Saturday schedule should break up route 5 and 6 so there is a bus running every 30 min. Route 2 and 4 doesn't work.	Service on Boyd Acres and Empire	Routes should all be 40 + minutes and staggered start times so they quit missing their connections.	Making all 30 min runs into 45 min, longer hours on sat and service on sun. Sat schedule is confusing. The way we run our schedules it feels like you're setting us up to fail.
7. Destinations we Should Serve	N.E. along Empire Ave	Brosterhouse Rd. and Murphy Rd.; Reed Market and American Ln.; Deschutes River Woods- River Woods Dr. and Kiowa Rd.		Deschutes River Woods, Brookwood and adjoining neighborhoods	North West Crossing	Empire East, Wilson between 15th and 3rd St, Reed Market between 15th and 3rd St.		DRW make it like Route 30	Boyd Acres and Empire	Passenger want more frequent runs to La Pine, Sisters, Redmond	DRW Area
8. Capital, Infrastructure, Technology Needs	Separate frequencies between fixed and Dial-A-Ride	Communications			Stop at Pinebrook and Brookwood. Log in and log out on manifest when routes are late.		Need to light shelters in winter so you can see people waiting. New radio for Dispatch, don't purchase same DAR - route buses that were purchased last time 500 series. Can't see out of them to see traffic coming from passengers side. Maybe add cameras to these buses with monitor to help with this problem. Purchase winter traction tires for DAR. Drop chains aren't good enough.	Trash at stops need more attention	Proper microphones in vehicles except Gillig, Gillig has good.	We need an automated system for both calling all stops and a display for hearing impaired inside ALL buses.	Buses, shelters and benches for people to sit especially for the elderly and for those with disabilities. As far as buses go the Freightliners do the job just not as well as the Gilligs. When loading wheelchairs or people with walkers I have to get out of my bus into traffic because its too hard to squeeze out between the over head, fare box, and pol.
9a. Rank: Verbal Stop Announcement		2	2	1	1	1	2		4	4	1
9b. Rank: Securing Wheelchairs		2	4	2	2	3 (on freightliners)	Freightliner - 3; Gillig - 1		2	1	3
9c. Rank: Handling Rider Behavior		2	1	2	2	4	3		1	4	1
9d. Rank: New Fare Program	?		3	3	2	1	1		2	1	2
9e. Rank: Taking scheduled Breaks		2	4	3	3	4	2	3, Sometimes we are further away from a safe place to take breaks than 5 minutes. Policy needs changed.	4	1	4
9f. Rank: Maintaining On-time Performance		3	4	3 (depends on RT)	3	4	2	4, Scheduling not allowing enough time	4	1	4
9g. Rank: Feeling Comfortable and Safe		1	3	1	2	2	2	1	2	2	4
9h. Rank: Navigating Your Route		2	1	1	2	1	2	2	3	5	1
9i. Which Section is Most Difficult							Reed Market on HWY 97 at light when people are going home from work wait time			Sheriff office to Robal Ln.	
9j. Rank: Assisting Passengers at the Station		2	1	1	1	2	N/A		2	NA	1
9k. Rank: Inspecting Vehicle		1	1	1	2	1		1	2	NA	1
9l. Rank: Coordinating with Dispatch and CET		3	3	1	2	4		2	1	NA	4
10. How Well do Scheduling and Breaks Work	Very difficult at times, especially when we are given 5 minutes to get from Walmart on the South End and JC Penny on the North End	Sometimes I get no breaks due to time schedule.		Well enough.	Do not like that call in at 4:30 AM to see if we have to work, staff should call us, especially if driver is already scheduled to work that day.	Ok	Scheduling does not work more than half of the time.	Not well.	Fine	They don't. Breaks are not scheduled. We are told to fit it in where convenient and least invasive. That is not possible after 9 am. Some drivers don't take breaks to try and stay on schedule.	It well when we have the people to give us breaks and having to help catch up routes that are behind.
11. How Well Does Dispatch Work?	The radios in Dispatch is the worst (mine always stuck keying in or unkeying) they don't seem to schedule Rides geographically, (only by time).		DAR sometimes not laid out efficiently. Not enough time allocated (sometimes).		Dispatch is always telling us to log out and then long in, they don't realize what drivers are dealing with with passengers and traffic.		Scheduling need to work with Paratransit to set up drivers schedules to meet bid requirements.	Not sure DAR needs its own channel. Need more 10-30s	N/A	Dispatchers do NOT listen to drivers at all. A bus cannot divert down most side streets. Sick and tired of being told, "do the best you can." Also, when a driver asks for immediate police assistance, asking us to call ourselves is unacceptable!	DAR talks too much sometimes asking stupid questions they know the answers to. I'm not DAR and I know the answer to their questions. Sometime you can't get ahold of dispatch because the system keeps clicking because its keyed on or somebody's mic is keyed on.
12. Area for Additional Funding	Additional Frequency	Additional Routes	Improving Stop Facilities (collecting garbage); Better Scheduling/Staff (drivers always needed)	Additional Routes	Additional Frequency	Additional Routes	Better Scheduling/Staff	Additional Frequency	ALL	Additional Frequency	Better Scheduling/Staff
13. Number One Recommendation	Train schedulers to be more efficient and have office staff out on route more often during PEAK times of Day. Get rid of 30 minute pulse on Routes that obviously don't work. Especially during peak times. They are constantly having to use shadow buses to get routes caught up.	Make all routes 35-40 minutes	Give more time to some CET routes (1 & 4). When CET Snow Supervisor calls for snow schedule, COIC should not overrule!	Get buses on schedule and on time.	Riders who smell of skunk pot make it bad for others and drivers. Something done with long in and log off manifests.	Expand Routes	Cooperation between CET staff and Paratransit staff. The drivers are the ones who suffer. Putting a night shift on for mechanics so bus repairs could be completed. Also night shift for bus washers. My bus went 4 weeks without being washed. They had to pull it out of service, get it washed?	Put stops out of harms way. Wilson and Taft stop should be closer to Taft.		There isn't just one. They all go hand in hand, but if you don't move all Routes to 40 minutes, you need more buses running more often. And some of the routes need to be restructured for timeliness and safety. Left turns should be rare, not the norm.	45 min runs. Better driver's seat and buses not all seats are newer. Reg runs on Sats no more 6/1, 11/7, 2/4, and 3/5. Just runs like the rest of the week.

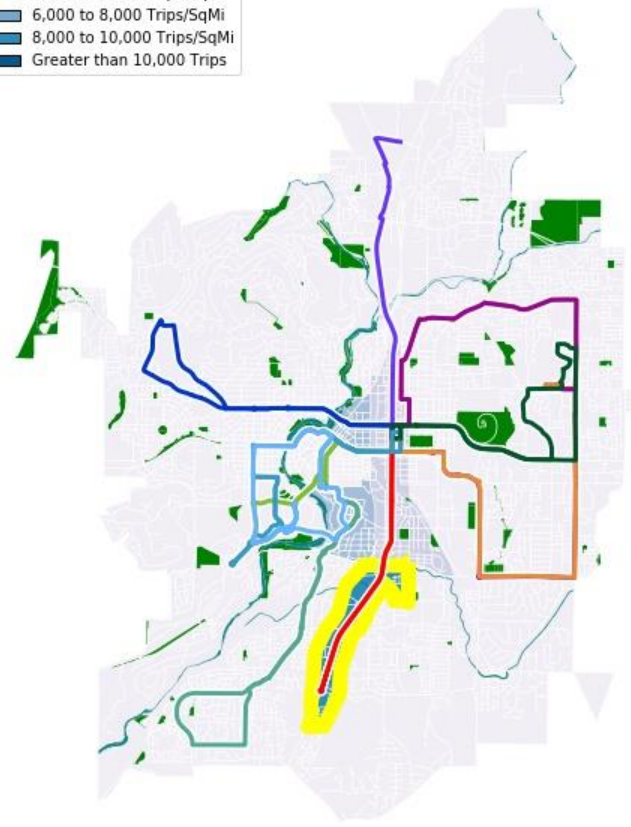
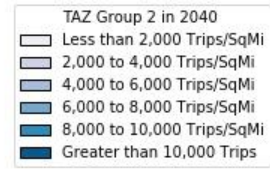
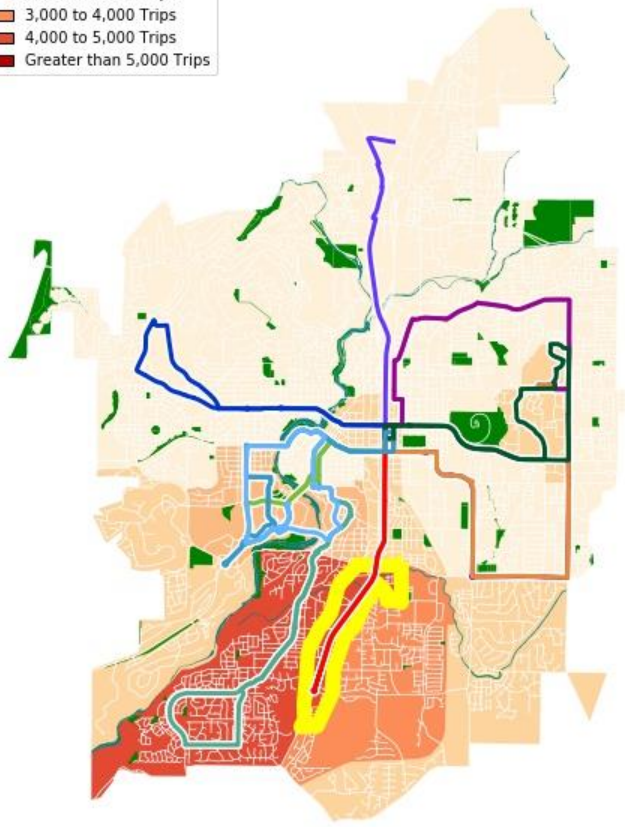
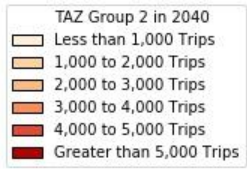
1. How many years have you been an employee	1	3+ years	It will be 5 years as of 11/10/19	1 year	1 year	2 months	4 months	3 Months	6 Months	1 Month	2 Years	5 Years	20 Years	2 Years 5 Months	1 Year	
2. Full or Part Time	Part Time	Part-time with mostly full time hours	Part time	Part time	Part time	Part time	Part time	Part time on call	No	On call	Full time	Seasonal, on call	Full time	Full time	Full time	
3. What Route(s)	1, 2, 3, 4, 5, 7, 10	2, 3, 4, 6, 7, 11	Route #4	All	Madras Sisters	Friendly, CC3, CC4	Redmond and where Mike tells me to drive	All	CCs Sisters-Madras-Redmond-Prineville	Friendly Ride	DAR	Ride the river, Lava Butte, have driven city routes	Shift one, dial-a-ride	6P 3A 4A	General	
4. Difficult to Navigate	RT 7 Courtney area, RT 2 Wall inbound. RT 4 sheriff's office	See # 13. It's only partial. Add: RT 4 Stop at Cascade Village needs to be moved east 60-80 FT and rebuilt for lift and transit bus use - traffic backs up or squeezes by with as little as 2" clearance to buses.	Turning right onto 4th st and Hill st in Bend	No	None	Hawthorne turning right off 97 SB	No	No	No	A lot of medical areas are hard to get to. Seems like parking and navigating medical areas for buses was not taken into consideration.	S 1st and SE Veterans Way	Yes, leaving the county jail and having to cross 97 traffic coming into 3rd St from Northbound of town with one turning lane and the other straight coming at 45 mph and then getting onto the other side of 97 going Northbound onto the fastest lane to merge to slower lane to get to Cascade Village Dangerous Class F maneuver	With Dial-A-Ride it is not so much streets and intersections as it is driveways. That would be both entering and leaving. You can scrape the bottom of the bus or curb the tires. These places are increasing with the increase in ridership.	On 6P all the way around hospital. On 6P Wells Acre and Butler Market. On 4A Nels Anderson too hard to get from Rt to Lft turn lane. On 4A 1/2 block on Lafayette to get in left turn lane.	Franklin and 4th st. Butler Market and Wells Acres. Studio and 4th St.	
5. Difficult to Stay on Schedule	Route 2 Reed Market by Old Mill, Route 4 3rd St.	RT 4 S/B 45 min run w/1 time point - varies due to traffic inbound or outbound	Fall behind first stop due to lots of kids. Other stops are "ok" 10-15 seconds can push one behind at 3:50 have pick up.	No	Sisters to Redmond		No		Slow Passengers	For Friendly Ride there is no route but my opinion is that the streets, stop lights, and rail road crossings are not built or ran for the amount of traffic that runs on the streets and highways of Central Oregon.	DAR = when they schedule 3 rides with the same window and they are different sides of town.	RT 4 (stay on schedule)	There are schedules that are very difficult to maintain. Some of the drop offs and appointment times are the same. If you have slow loads with mobility devices and you ?? bad weather, or construction you are later at times you can be late for dropping the passenger off and your next pick up.	Route 4 - All Day	Rt 4 at Hwy 20 and Jamison and it gets behind at the traffic time.	
6. Passenger Suggestions	Make 4 a 45 min run. Change 2-4 route on Saturday to a different pairing. Route 2 and Route 4 are the two most difficult routes and make this route chronically late.	On time performance to connect with other routes - especially route 4. No frequency - reliability	Weekend Community Connectors	No	More buses on weekends	Dirty buses (every day)	Outside bus to be clean	Fix AC! More Dial A Ride in Sisters. Redmond Fixed Routes	Heat, AC		That we are always too late or too early		DAR too early. I will be on the bus for over an hour. Why can't I be dropped off to get my prescription filled? Why are you taking me to the wrong location?	They want the buses to run until 10-11 pm	People complain about buses not being on time on weekends	
7. Destinations we Should Serve	Empire area. A number of people take 4 Nels Anderson and 5 Butler Market and walk	Boyd Acres to across Empire to 18th. Major apartment complexes and work/commercial areas - some requests to (not through) Deschutes River Woods. Community connect - Direct Prineville/Bend possibly connect at RT 5/6/7 27th St.	Community connector stops in Redmond	No	No	Dedicated route in Redmond	Powell Butte weekend runs	Sisters. Redmond fixed routes			Fixed route around Redmond		When the new high school is built in the south end of time there might be a need for routes both fixed routes and DAR	Deschutes River Woods, Alpha		
8. Capital, Infrastructure, Technology Needs	The radios are terrible. The maintenance on buses is inconsistent. Adversarial relationship with mechanics at times	Yes- starting at Hawthorne - overcrowded traffic and number of buses. Transit buses - shuttle buses- and lifts. Too slow and cumbersome. Transit District Deschutes, Crook, Jefferson Co and involved cities.	Larger shelters, garbage cans and clean bathrooms at the Hub.	No	No	All stops need a shelter and a bench with a sign and sign post	All good				Tablets need to be updated (apps on tablet need to be updated maps app.)		Vehicles with loading ramps, not wheelchair ramps. Better radios. We can hardly communicate properly with the ones we have now.	Shelters have broken glass, trash everywhere. Vehicles whenever do write on certain bus next day on different route and not fixed has same problem. Tablets half the time don't work. Base needs more training.	Should be breaks for all routes	
9a. Rank: Verbal Stop Announcement		2	1 but distracting/safety	3	2	1	1	1	1	1		1	2	NA	3-Get hoarse towards the end of day	2
9b. Rank: Securing Wheelchairs		3	2 on/off time consuming on freightliners and Fords	2	2	2	3	1	1	4	3	1	4	4	3-4-some stink to high heaven	2
9c. Rank: Handling Rider Behavior		3	2-3	3-4	2	1	1	1	2	3		3	3-4	NA	4-when base don't have your back	3
9d. Rank: New Fare Program		1	1 but not programmed correctly for colors showing different fares	2	2	1	2	1	2	1		1	1	NA	1-when it works	1
9e. Rank: Taking scheduled Breaks		3	3-4 depending on route	2	2	1	3	1	1	1	1	4	3	2	4-when you have to smoke with druggies and get harassed.	3
9f. Rank: Maintaining On-time Performance		3	3-4 especially RT 4	2-3	2	1	1	2	2	2	2	3	3	3	4-Not when base don't have your back!!!	2
9g. Rank: Feeling Comforable and Safe		2	3-4 (Freightliners and Fords) Gillig - 1-2	3	2		1	1	1	1		1	3-4	2	4-Not when base don't have your back!!!	2
9h. Rank: Navigating Your Route		2	3 RTS 4, 7, 6	2	2		1	1	1	1		2	3	2	2	3
9i. Which Section is Most Difficult	Sheriff's dept crossing 20, also route 7 Conyers area	RT 4 Right hand merge and lange changes, left turn on HWY 20. RT 7 Courtney/Connors - huge safety issues due to parking on street for so few passengers. RT 6 left turns at Franklin, Wells Acres at Butler and Studio/4th St. Issue 5/6 - Norton Ave at 5th St. too narrow and parking	See previous comment								Staying on time	by County Jail	Some days its great. Some days it is terrible	But when accident on route base don't know where to send you	Franklin and Wells acres	
9j. Rank: Assisting Passengers at the Station		1	2	2		1	2		2		1	1	3	NA	1	1
9k. Rank: Inspecting Vehicle		3	3	2		1	1	1	1	1		1	2	3-4. not enough time - paratransit	2	1
9l. Rank: Coordinating with Dispatch and CET		3	3	2		1	1	1	2		1	3	3-4	3	4-no one will back you up, no supervisors at end of shift.	2
10. How Well do Scheduling and Breaks Work	The scheduling is ok but breaks and lunches are inconsistent. On routes that are busy it is very hard to just get off the bus.	Schedule- not good safety or health wise - should not be more than 8.5 hours regular shift and NO PM to AM shifts - drivers should be scheduled for all AM or PM shifts for both safety and health considerations. Route consistency for safety, timing, and customer service considerations. Breaks- some routes difficult to get without falling behind.	Ok	No	Fine	Great			Keeping busy	Very well	Sometimes breaks are a little too early	2 (somewhat easy)	The breaks work out pretty good. The software program I've used for scheduling is inferior to the one that I have used in the past. The schedulers are inexperienced and cannot adapt the problems into the schedule, like trains, construction, weather conditions.	Scheduling- getting off at 8pm- begin 5:30 AM next day is rough. Breaks- not right that we have to smoke with idiots, drunks, druggies	4 (difficult)	
11. How Well Does Dispatch Work?	The radios are hard to hear. I don't think fixed route and DAR should be on the same channel. DAR needs more informational and fixed routes needs are more situational.	Ok	Ok	Fine	Great				Sometimes bus mics are not working - #831	Dispatch works great scheduling is great. My only challenge for Friendly Ride is when medical appointments run over scheduled pick up.	Dispatcher (some) seem to only be nice and friendly on Fridays	Ok, they should sometimes picture themselves in the Driver's seat when demanding things, it cannot always be done right then and there.	Both systems need improvement. The improvement would and should benefit the passengers.	Dispatch system doesn't work at all, when call help with passenger we don't have any back up from them. Trips scheduled inefficiently especially RT 1, 4, & 7. People pulling out in front of us, flipping us off, won't stop when letting off passengers.	Too much unnecessary radio use	
12. Area for Additional Funding	Additional Frequency	Better technology - Buses - All transit. Way behind the curve. Need all like yesterday	Additional Routes, Improving Stop Facilities	Additional Routes		Additional Routes	Additional Routes	Additional Routes	Additional Routes	Better Technology	Additional Routes, Better Technology	Improving stop facilities (bigger pads 8x8 for wheelchairs), Better Technology, Better Scheduling/Staff	Better Technology	Additional Frequency; ALL OF ABOVE	Improving stop facilities	
13. Number One Recommendation	Make route 4 a 45 minute route using gilligs if at all possible. I would not continue to pair 2 and 4 together as a Saturday route. What happens is the route gets behind and a shadow bus gets released for the next run. Anyone trying to connect with the other route automatically misses a connection. Also the shadow/break bus is tied up taking care of route 2/4 making the other routes suffer.	City support in improving service- streets, stops, and traffic enforcement. Clearing visual hazards. Passenger Education and support from customer service, etc. This is scheduled transit, not charter service. Fares ready, seated quickly (or transit style "behind the line" and go) Bicycles on/off quickly (can be huge time consumers). May not sound like big deal, but plays into SAFETY SERVICE SCHEDULE big time. Longer at stops creates HAZARD, TRAFFIC BACKUP, driver stress, frustrated passengers not making connections. Routes and timing really have not been addressed since my tenure here. Traffic, speed limits, etc have all changed. Some routes only work w/no passengers, stops, bikes, or lift use and securements. Some neighborhood streets need to be re-routed E.G. 5th-Norton to Greenwood- too narrow by school 4th-Franklin to Greenwood - no parking. Especially Hawthorne to Greenwood - safety hazards. Since city is unwilling to restrict parking to one side on Courtney/Connors (RT 7)(to get worse with changes coming) - delete service - limited passengers. Do we need 5 and 6 going through hospital Entry at Williamson and exit at Medical Center not really built for anything but passenger cars. This is only a start - City of Bend is decades behind	Clean buses, inside and outside cab and filter changed often. Better AC maintenance. Better winter maintenance (wipers, heaters, tires, drop downs, leaks, gaskets). Major repairs completed more quickly. Bike racks maintained and more of them. Bike racks that accept larger bike tires and bikes.		More buses on weekends	Clean the buses	#1	Pay Bachelor drivers for their down time sitting at Bachelor.	Respect to customers - vice versa	Updated technology, radios, computers, tablets, and most of all Friendly Ride buses	TO ELIMINATE THE SPLITS	Giving paratransit drivers 30 min to clock in, grab their key, tablets, stamp date ticket, and do a thorough pre trip. Get damaged vehicles off the street and not let sit and get them back on the road ASAP. Public should not see our damaged vehicles on the road. This is all associated with safety practices related to all passengers.	The scheduling and optimizing, if it's even being done, needs to have a lot of improvement and input from the drivers in Bend. If the dispatchers and schedulers had the driving experience and knew exactly what was going on in Bend, it would solve a lot of the problems and help them do their jobs more efficiently. As it stands now, it is obvious, they are allowing the computer to do their thinking. Example, the appointment time and drop off time is the same. So, if you have any kind of a problem your passenger is late. This can have negative results especially if the passenger is a dialysis passenger. This practice of scheduling is becoming very prominent and causing a lot of problems, especially when you are trying to get your passengers to medical appointments. There is information which is not readily available because it is in the details. Well, sometimes you just do not have the time to go to the details. But you do have a drop down menu where you can put important information like, call ahead, alley pick up and other pertinent information.	Have a supervisor at Bear Creek until all buses get back at the end of day. Base be available until all buses are back at the end of day and back at Bear Creek, and security at Hawthorne Station until all buses leave at the end of the day!	Breaks for all routes. Make the signs bigger. Build boots for all bus stops.	

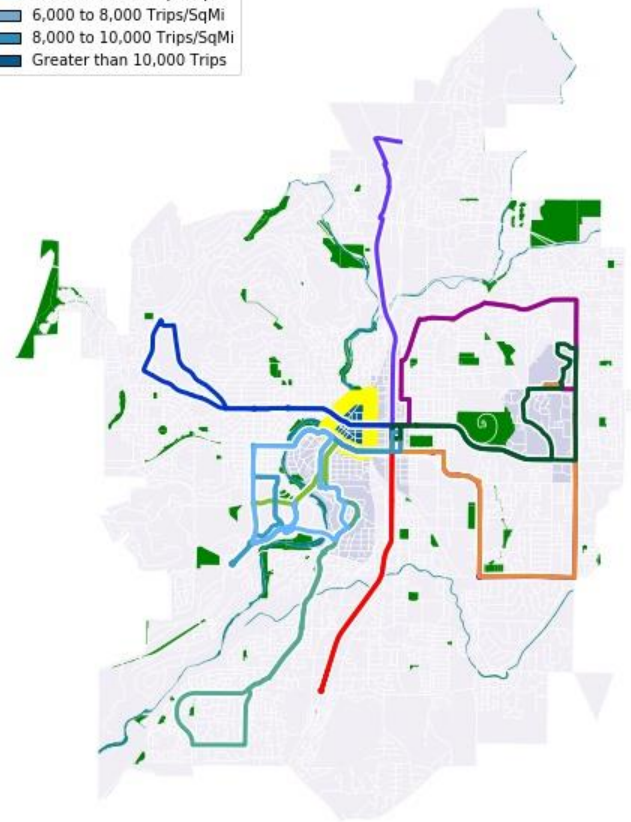
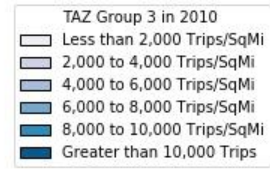
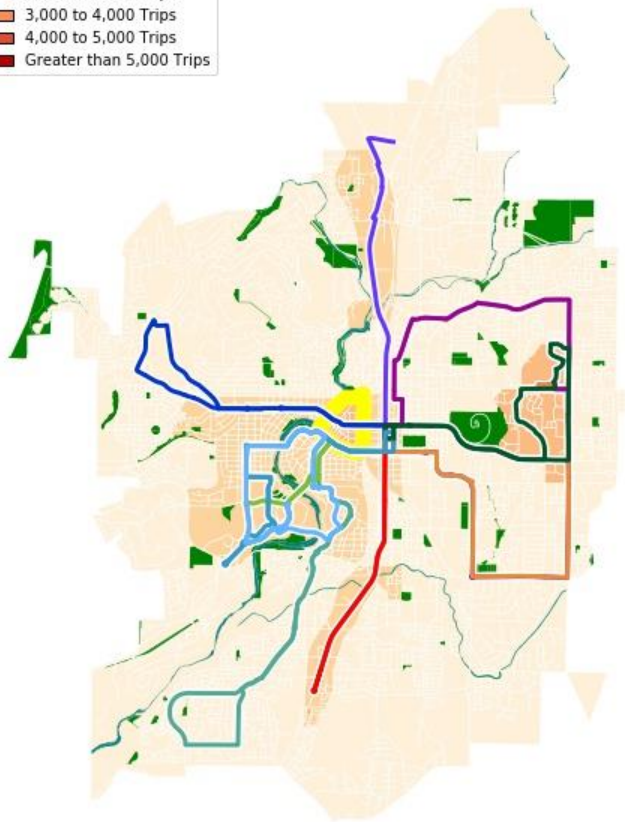
Appendix C Bend TAZ Groups Trip Patterns

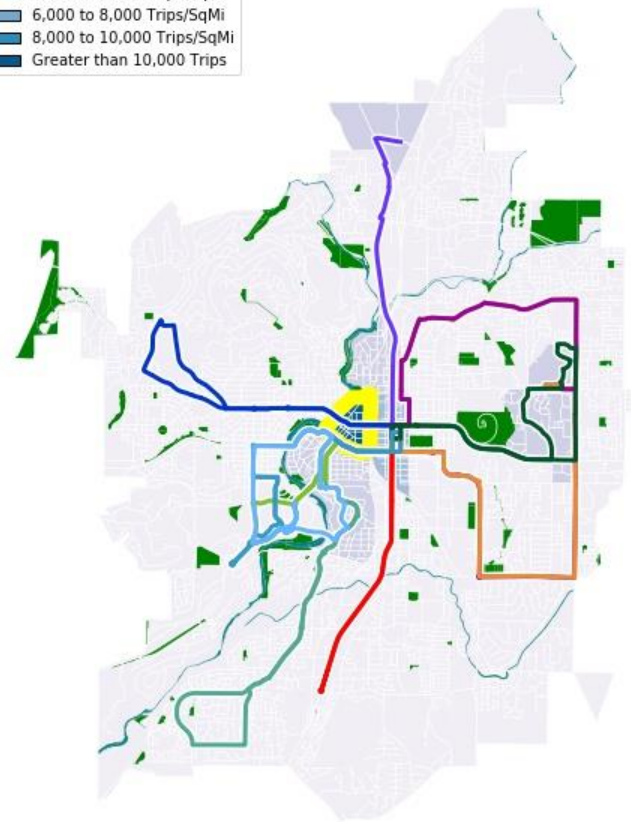
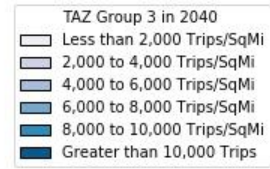
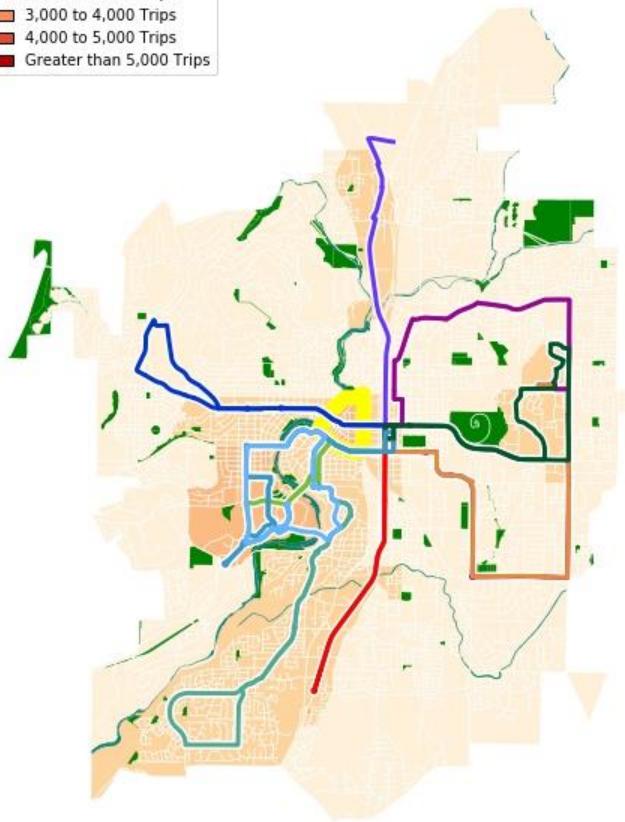
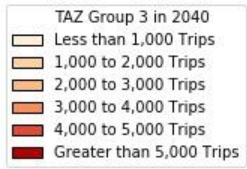


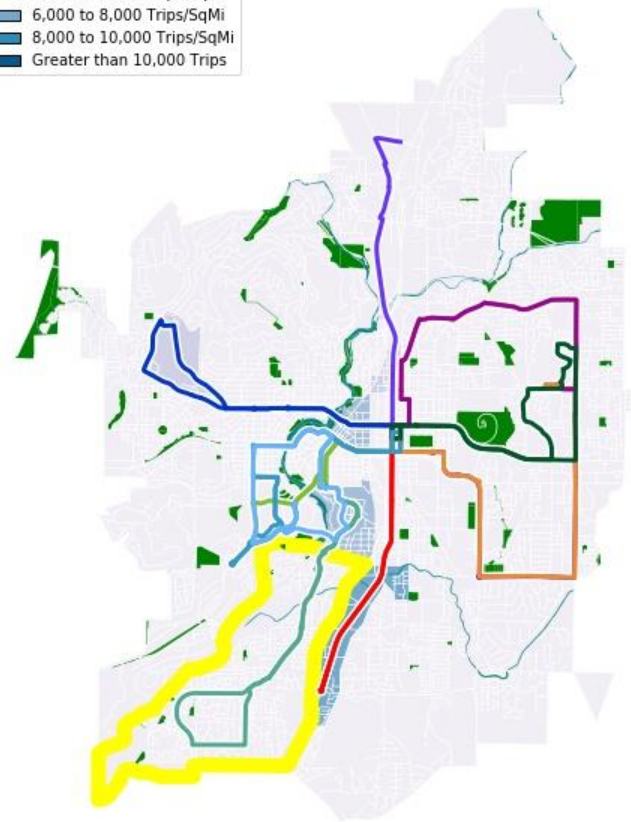
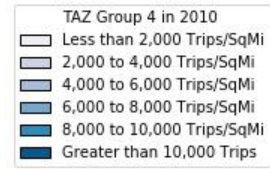
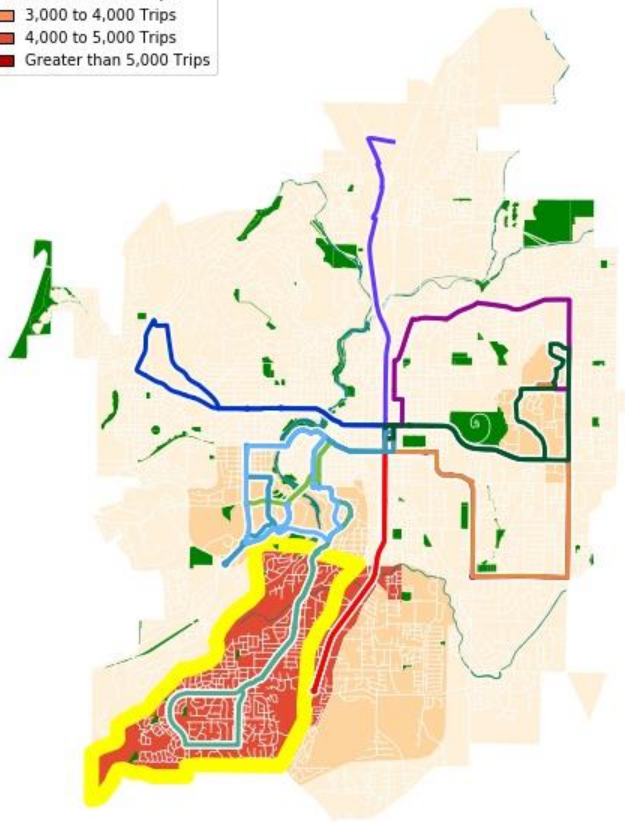


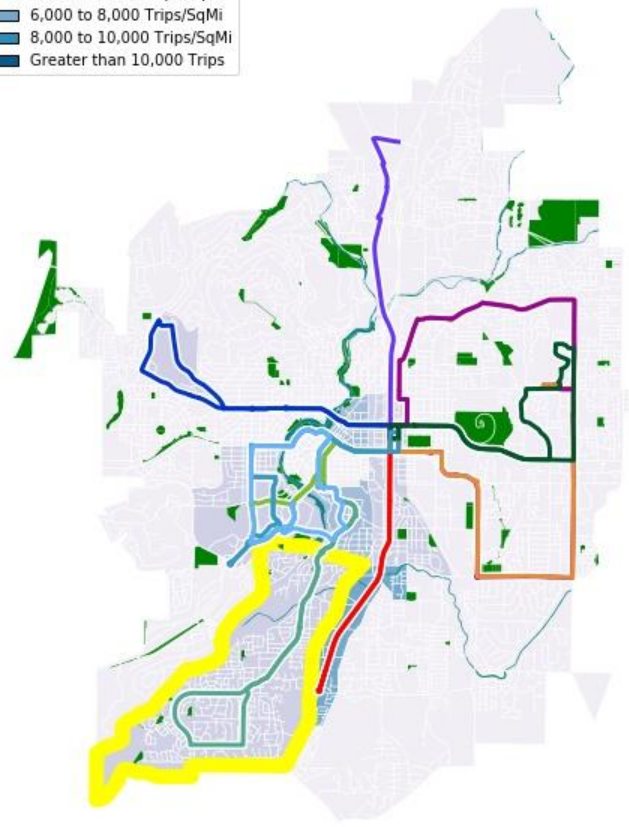
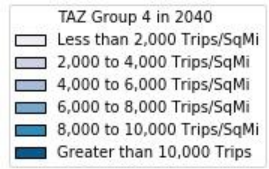
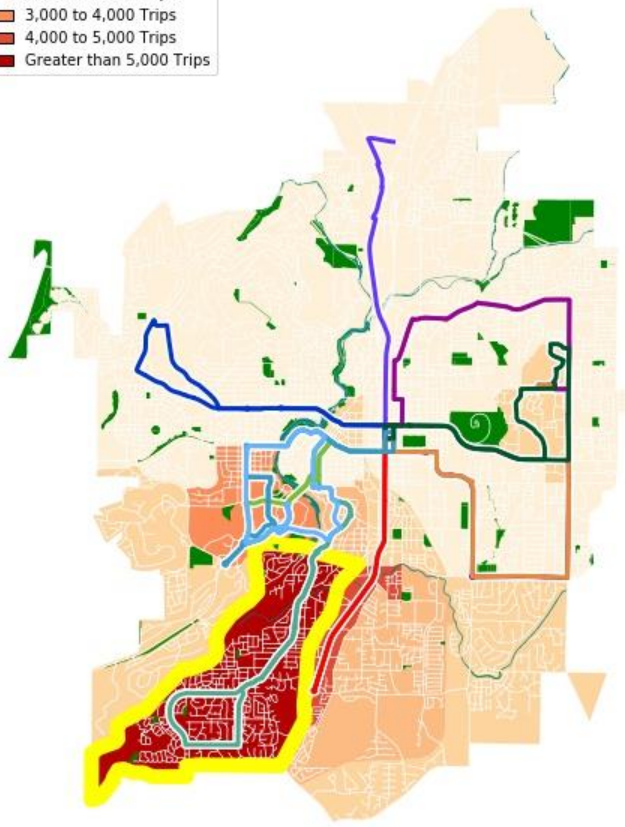
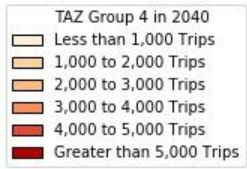


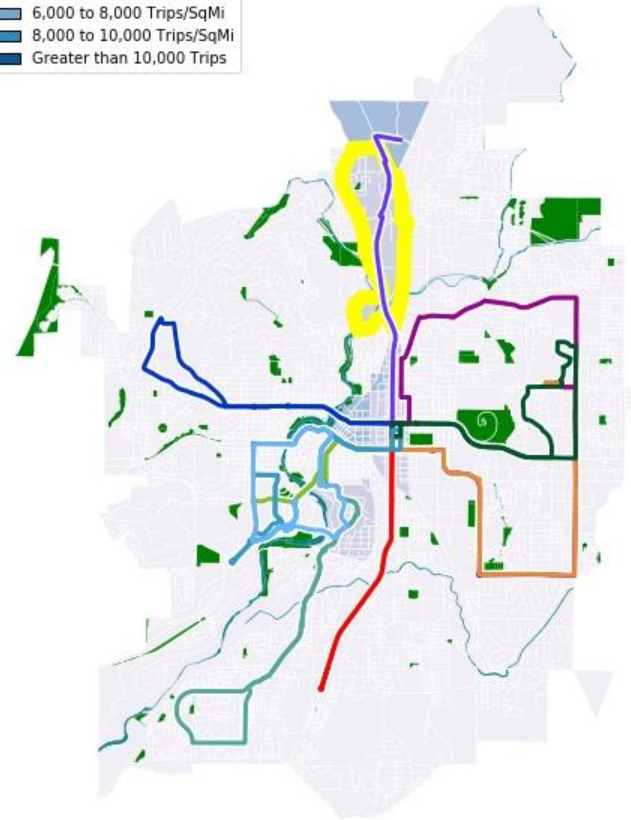
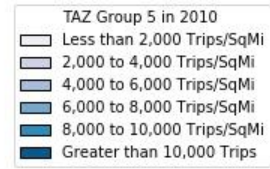
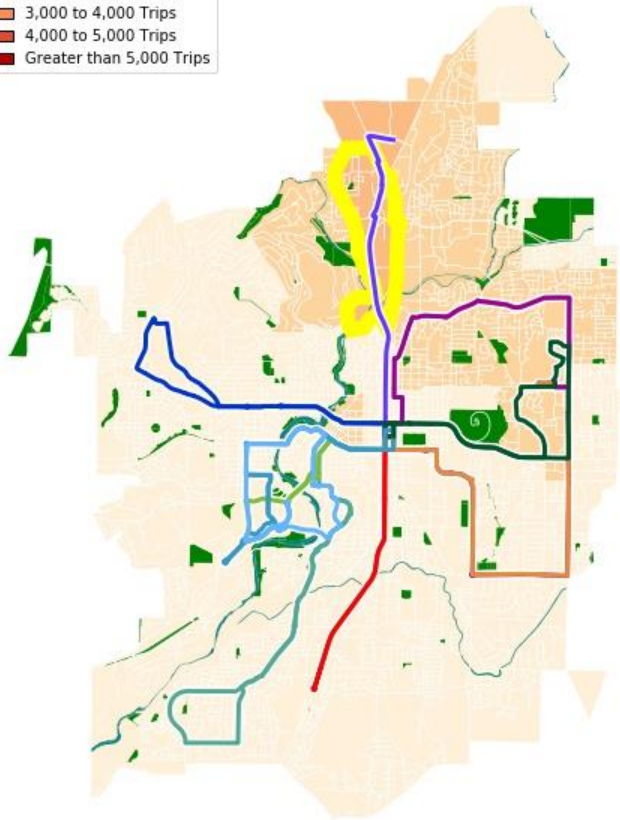


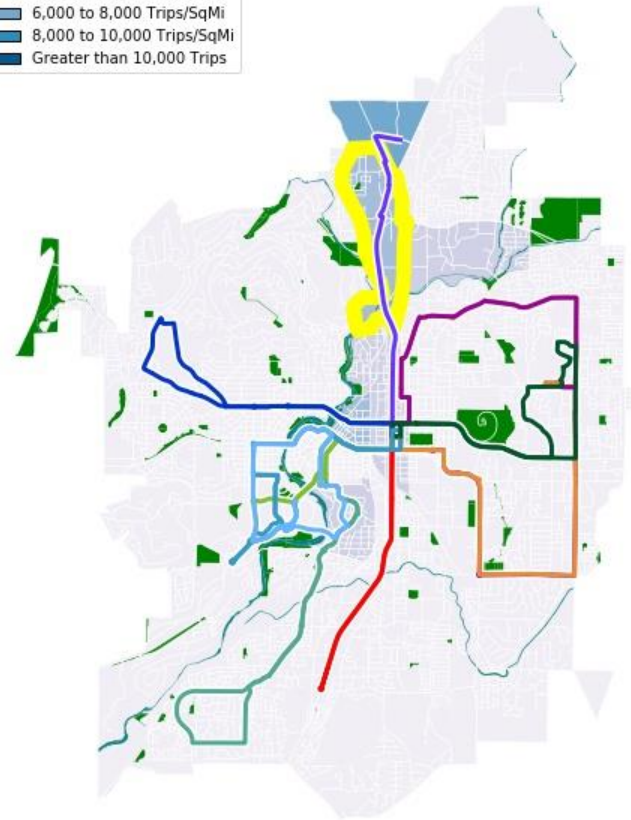
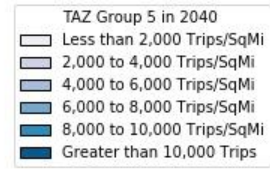
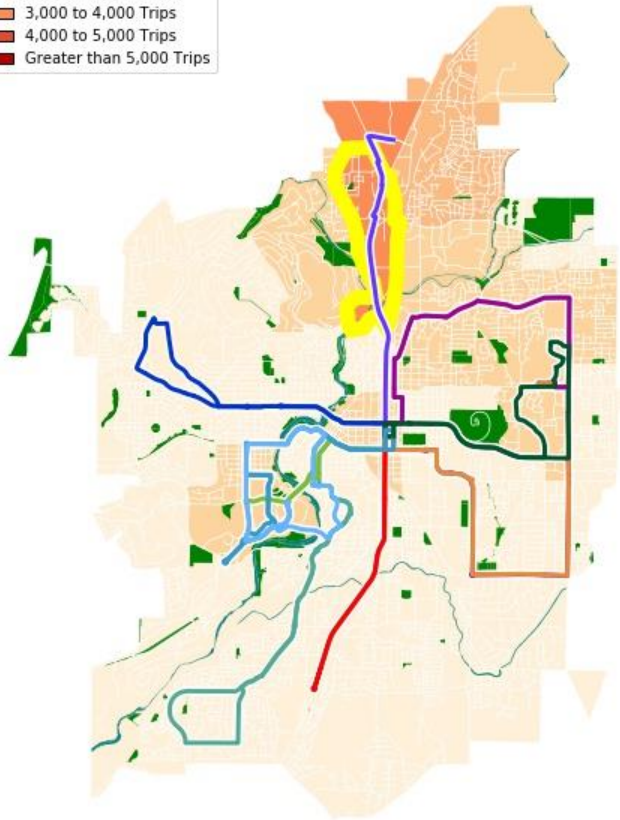
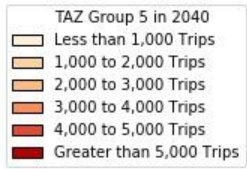


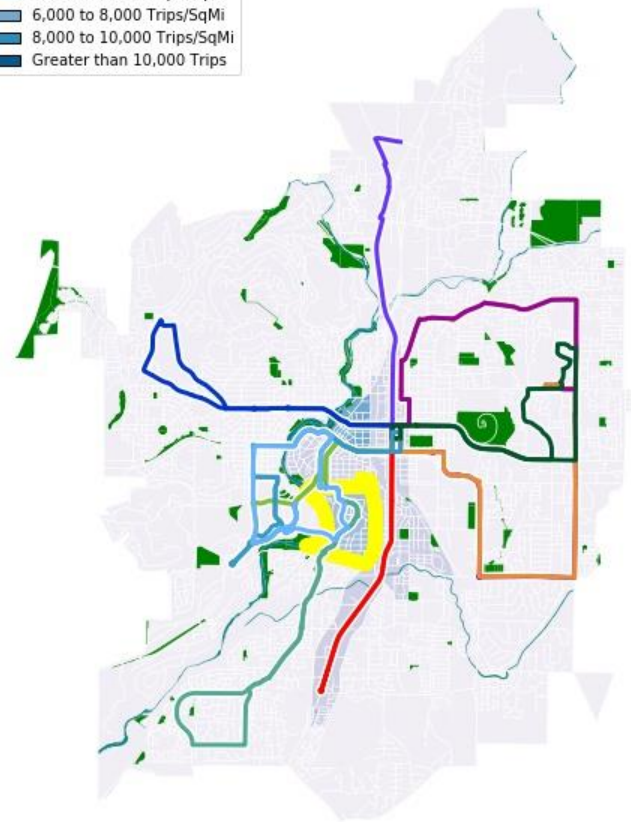
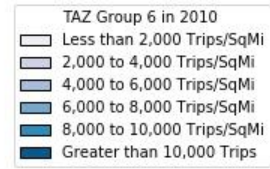
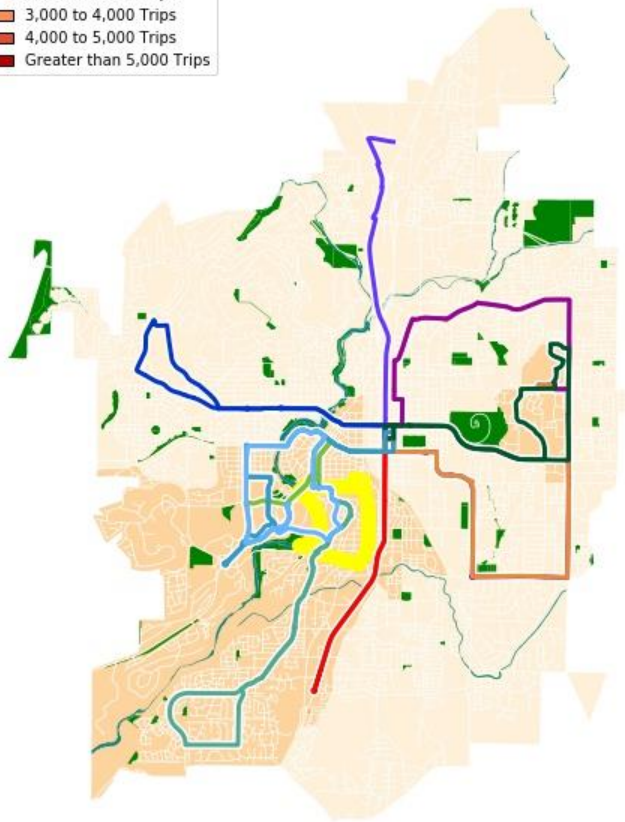


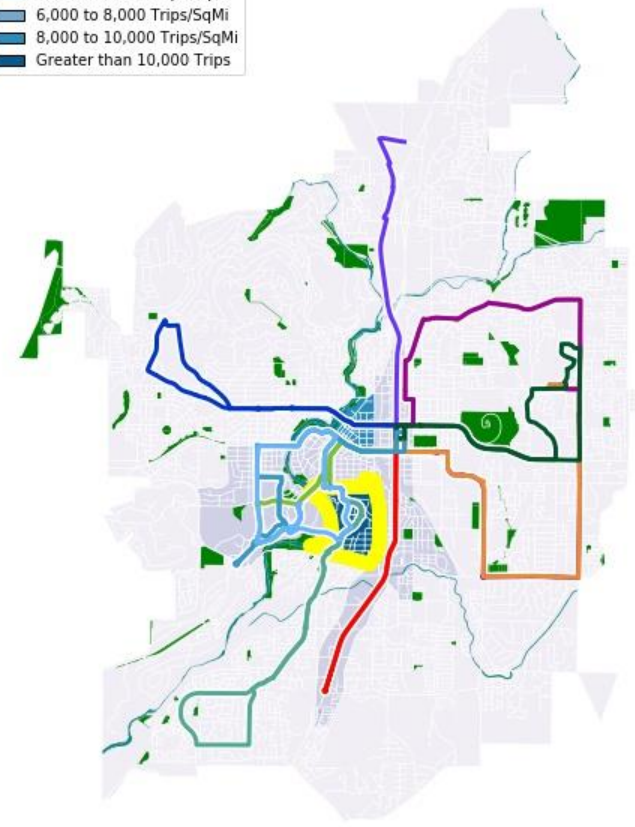
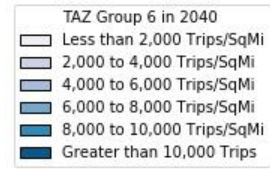
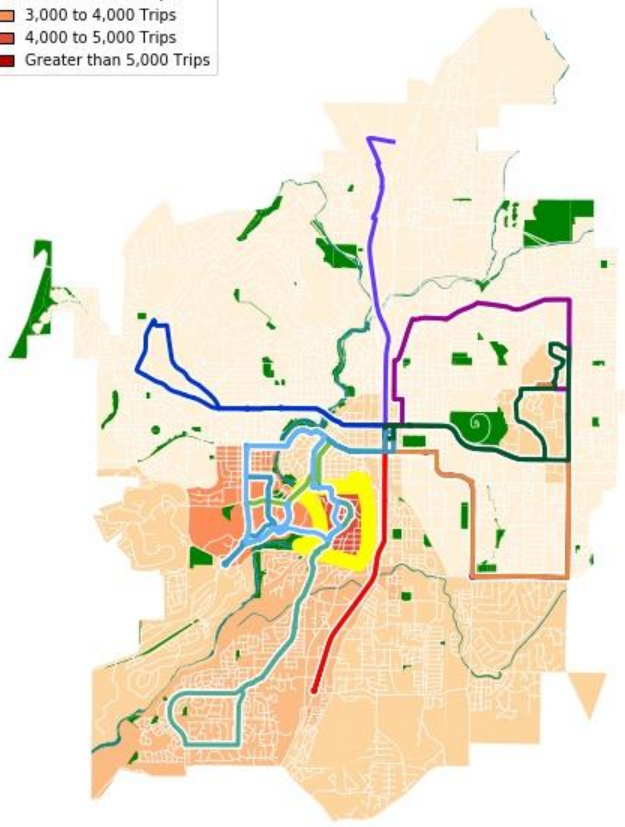
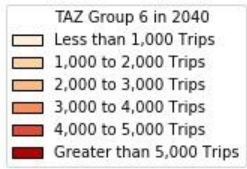


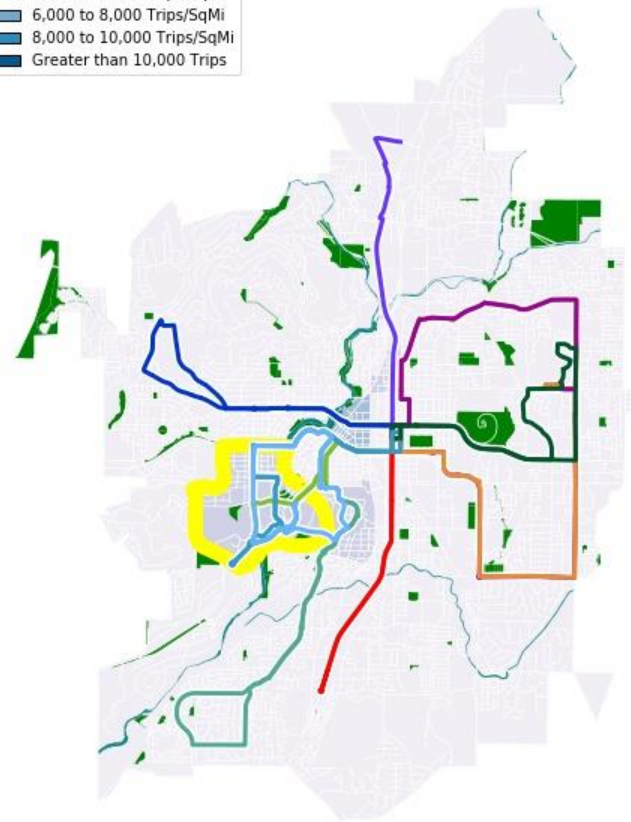
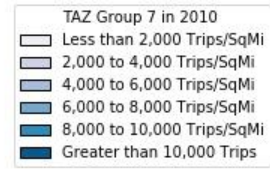
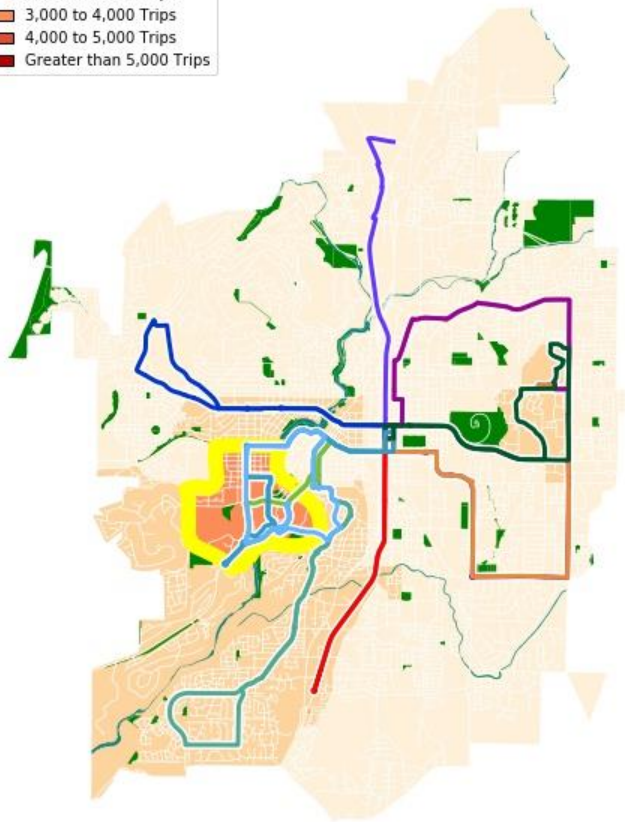


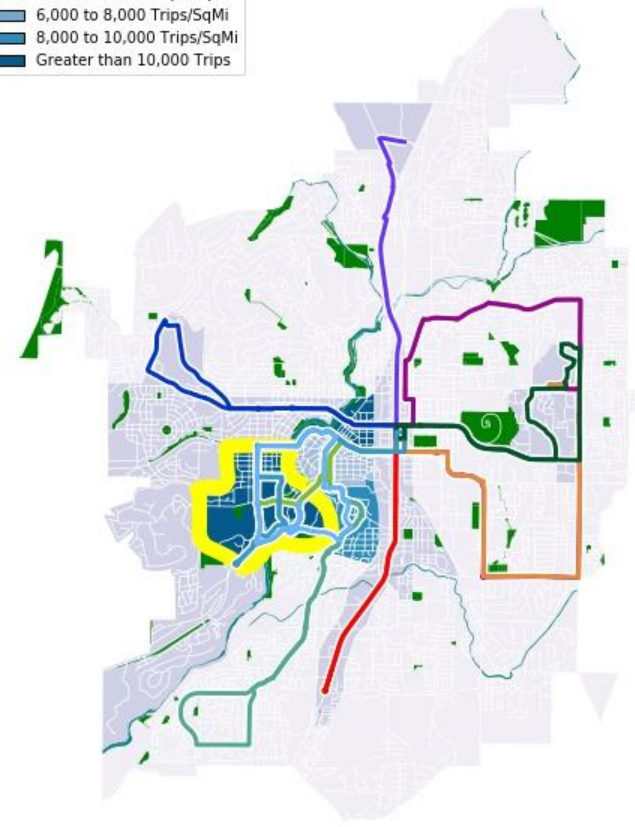
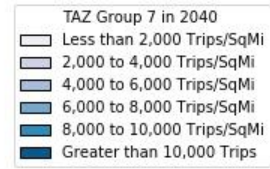
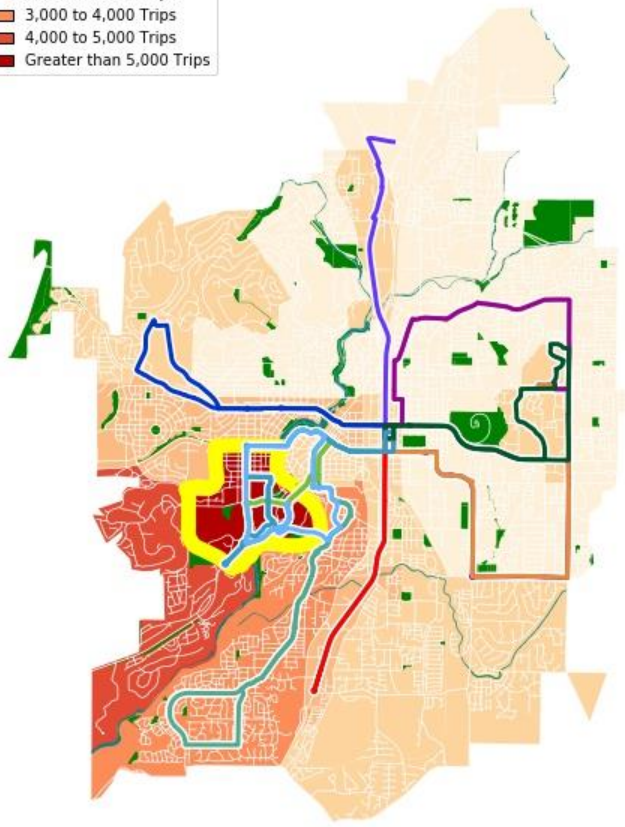
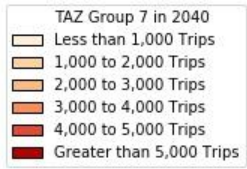


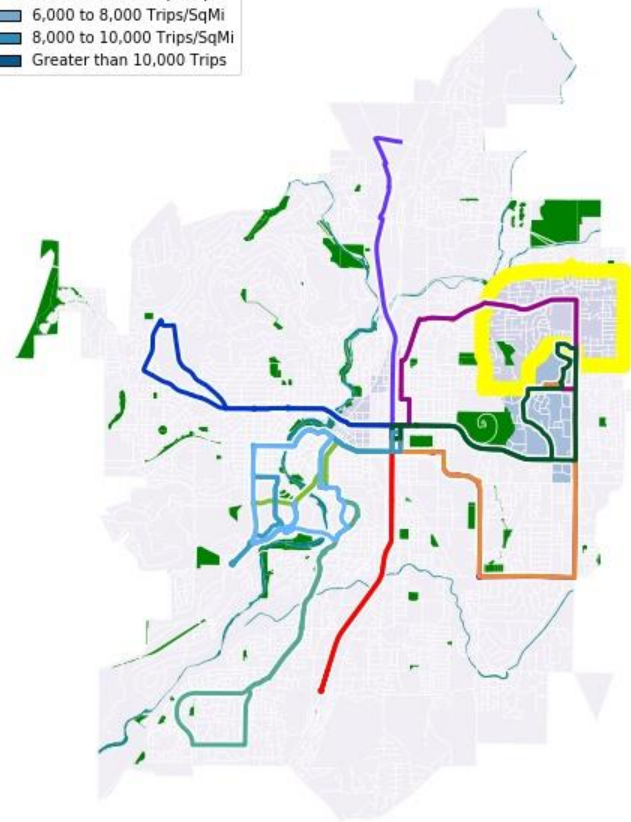
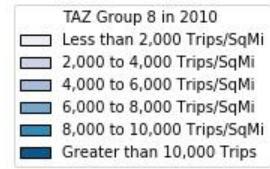
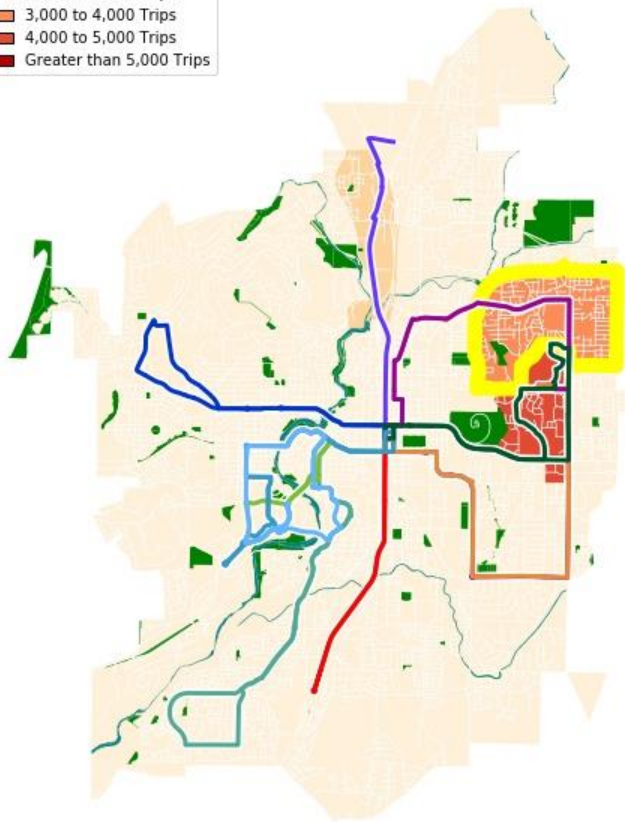


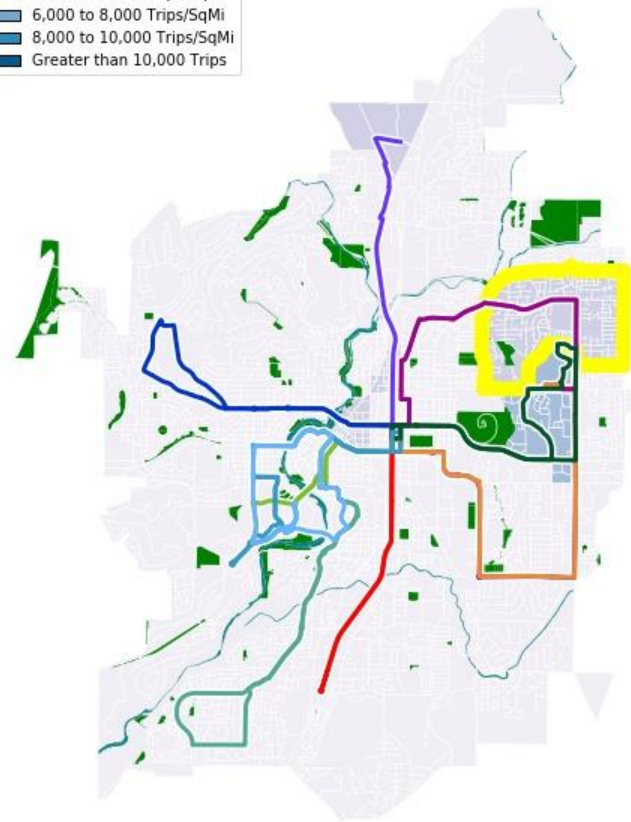
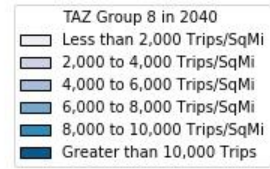
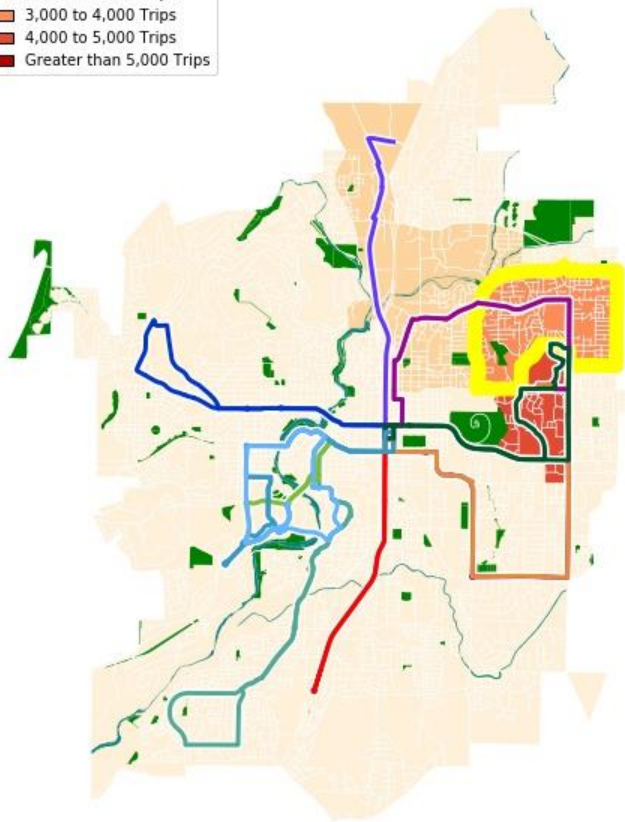
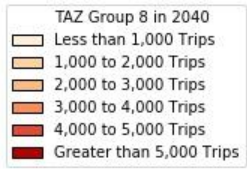


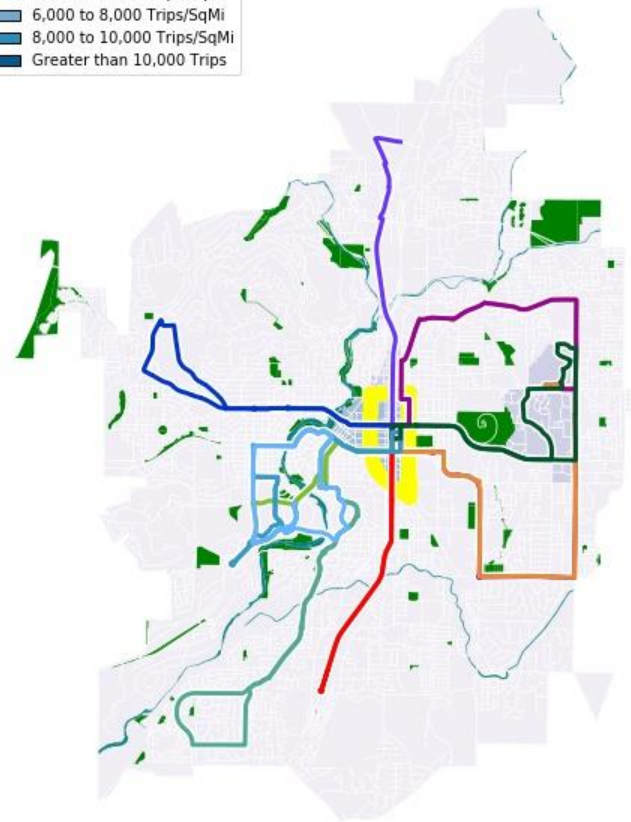
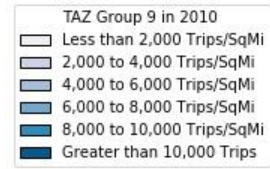
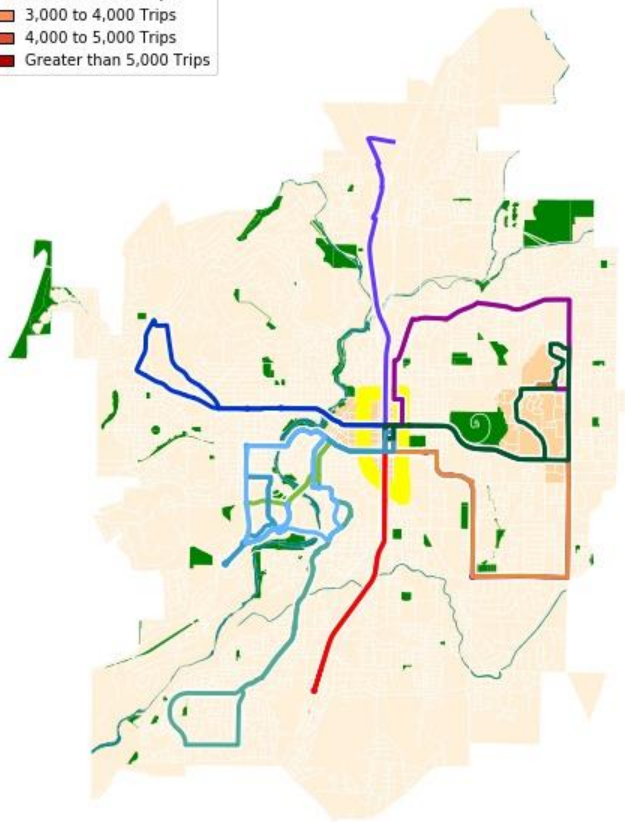


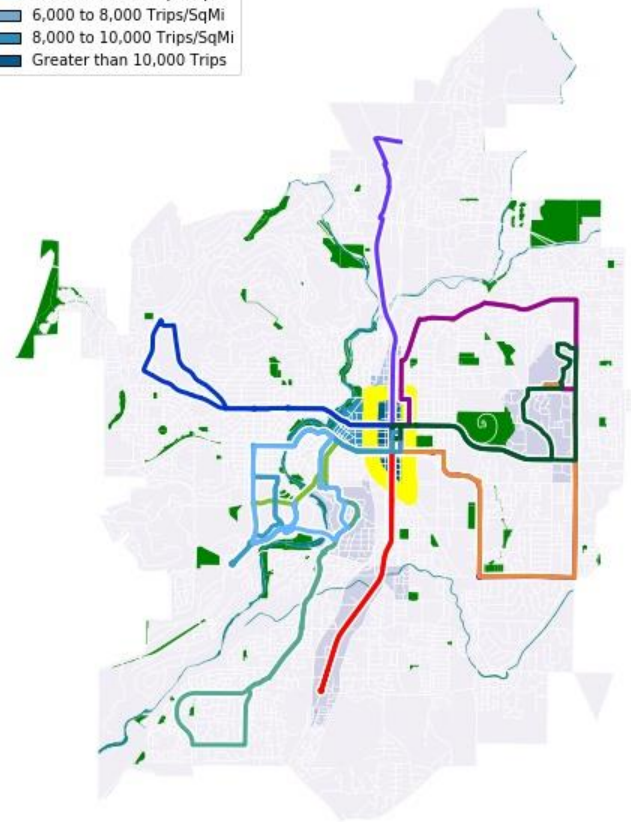
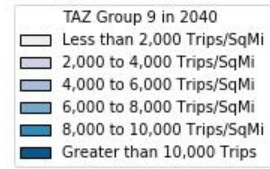
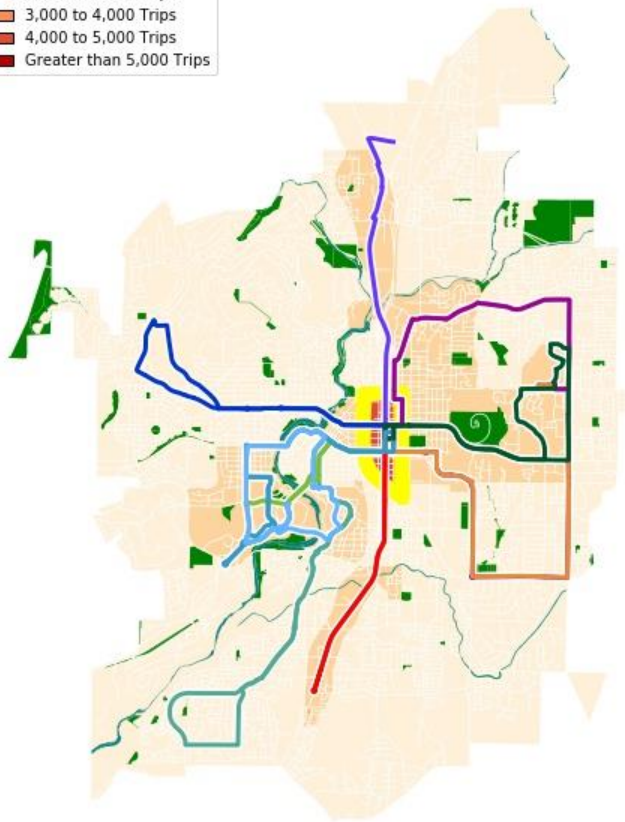
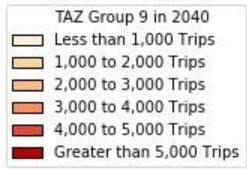


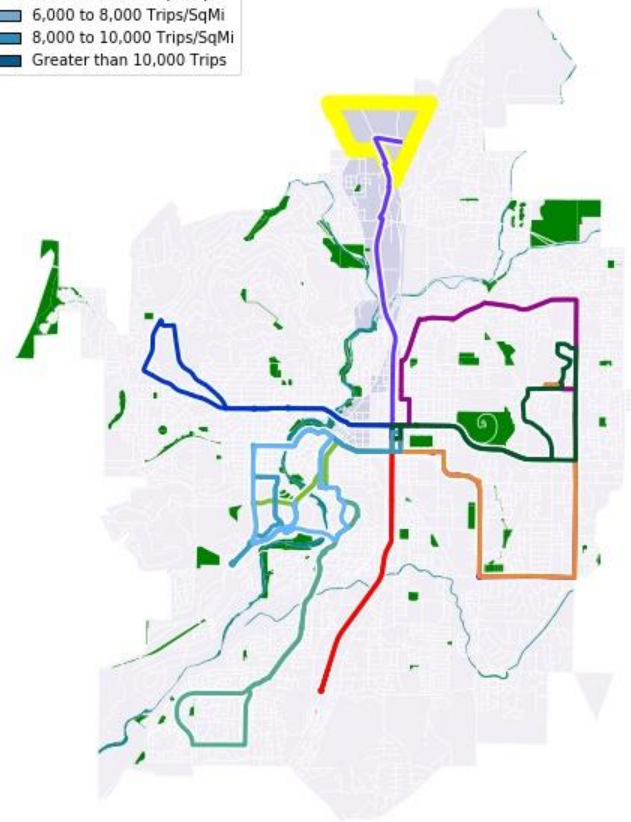
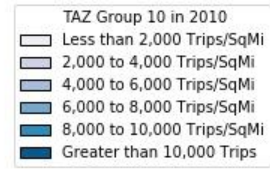
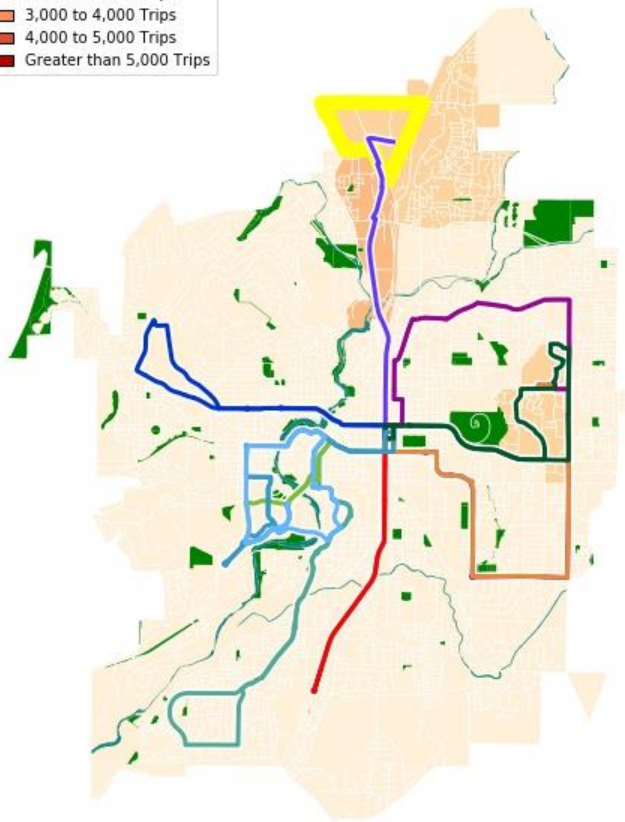


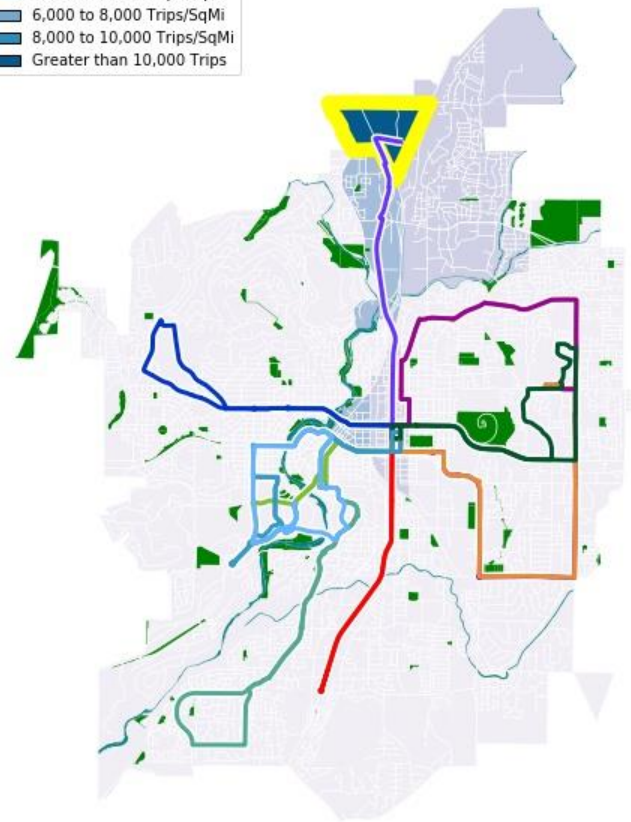
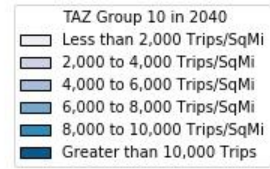
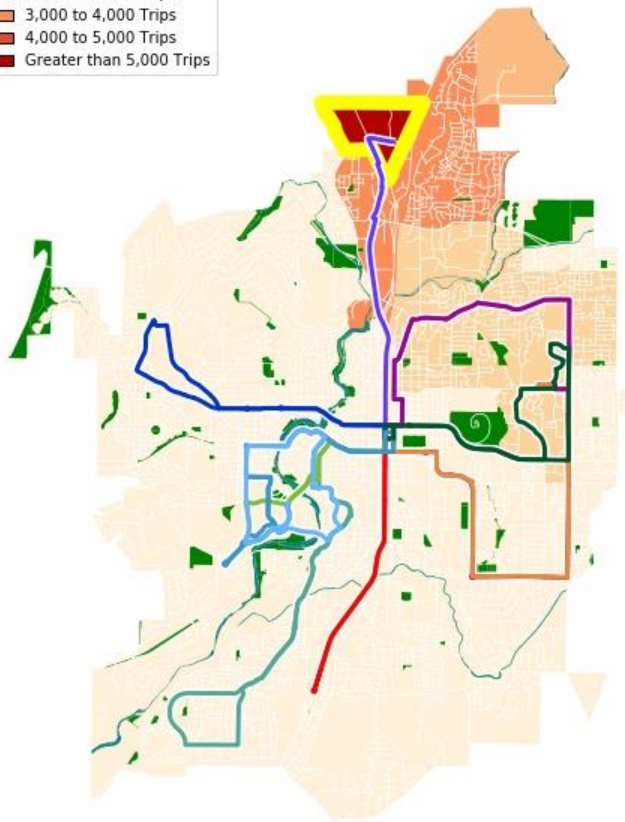


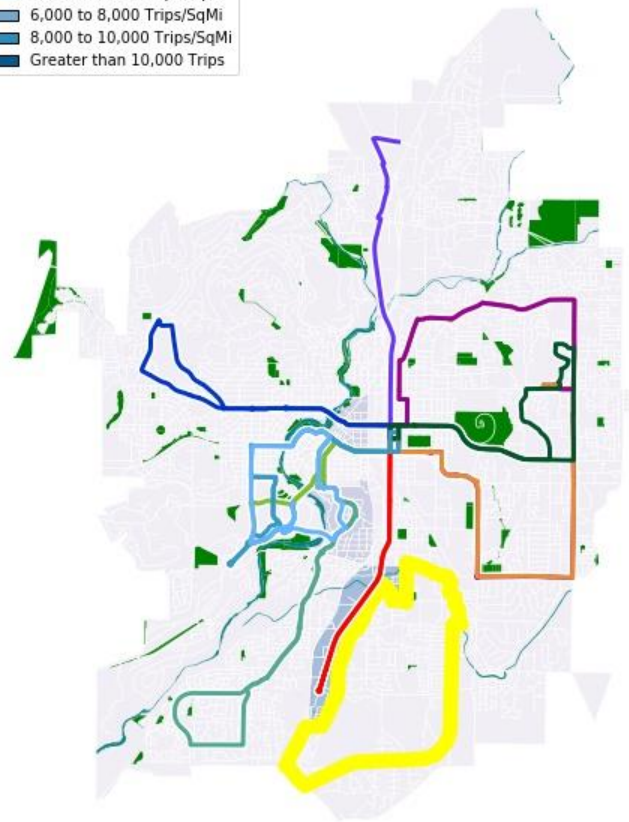
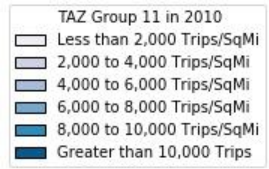
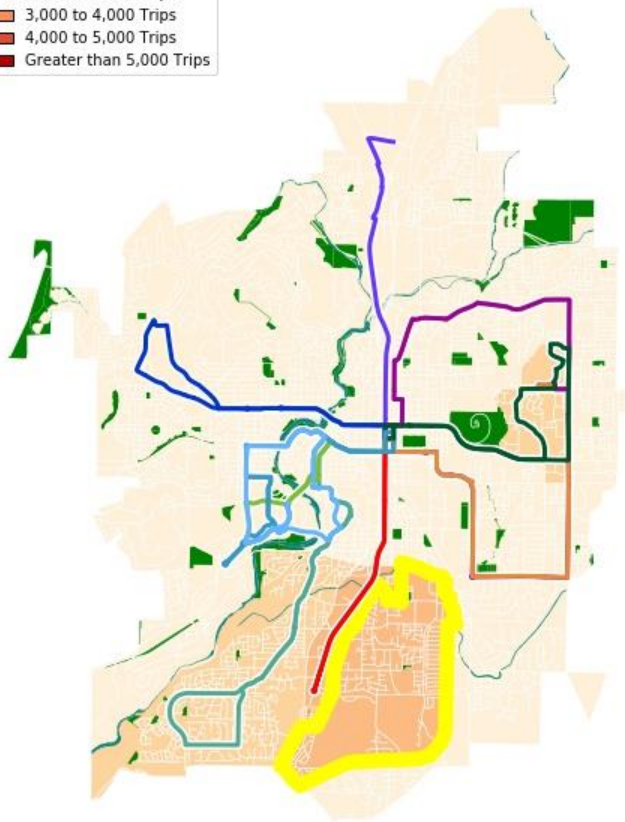


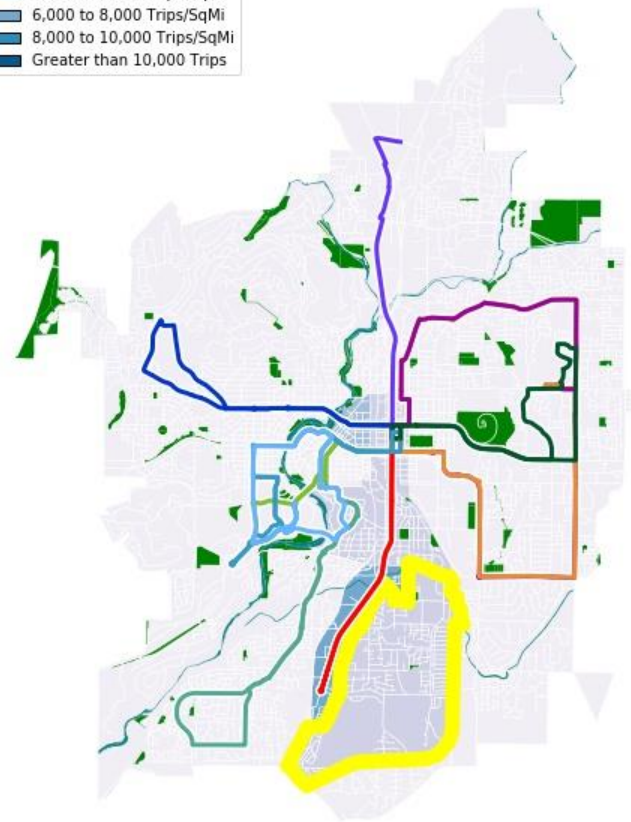
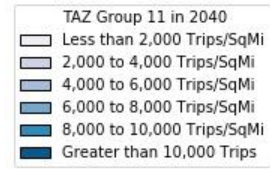
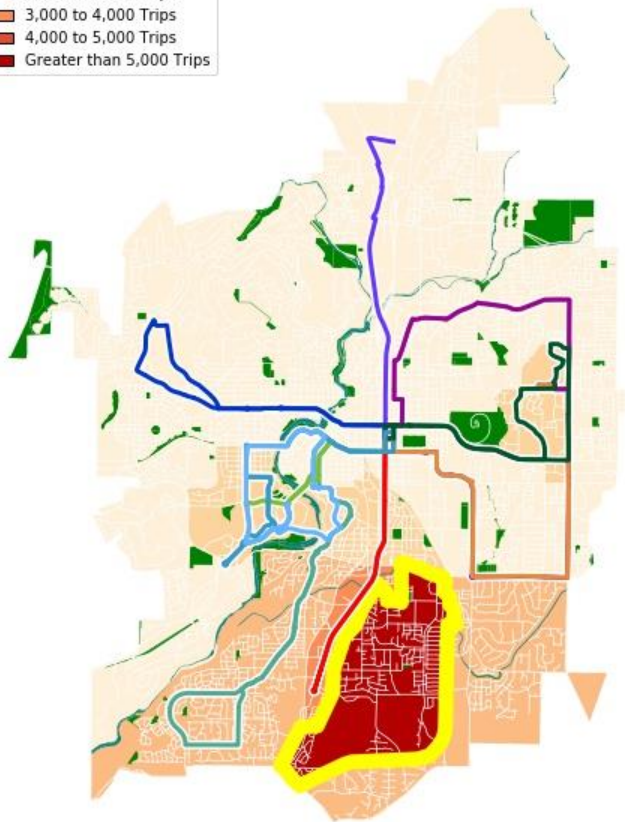


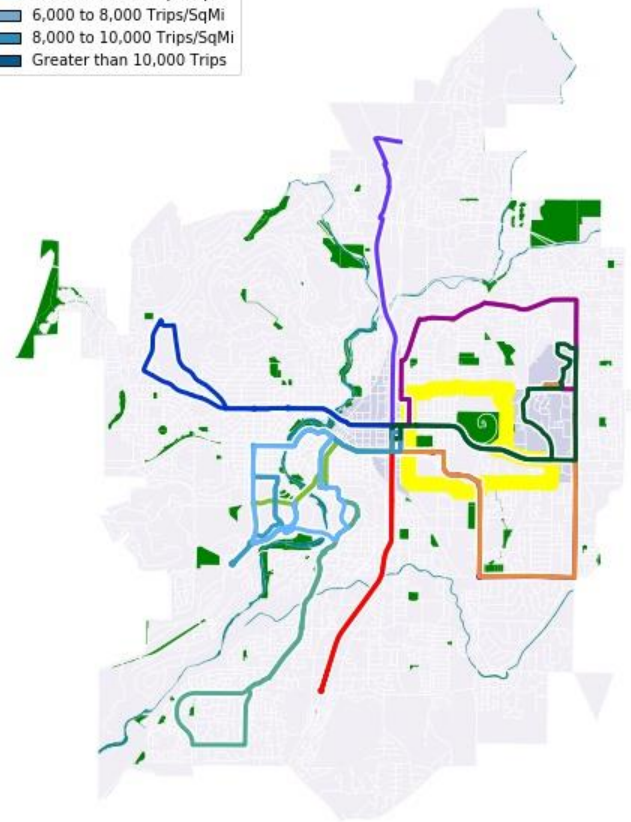
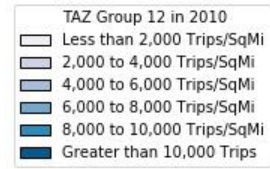
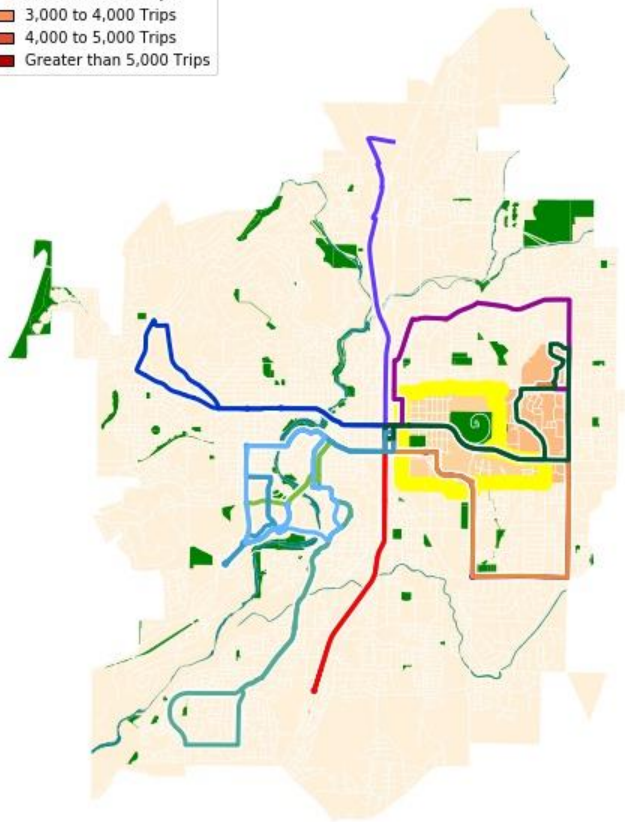


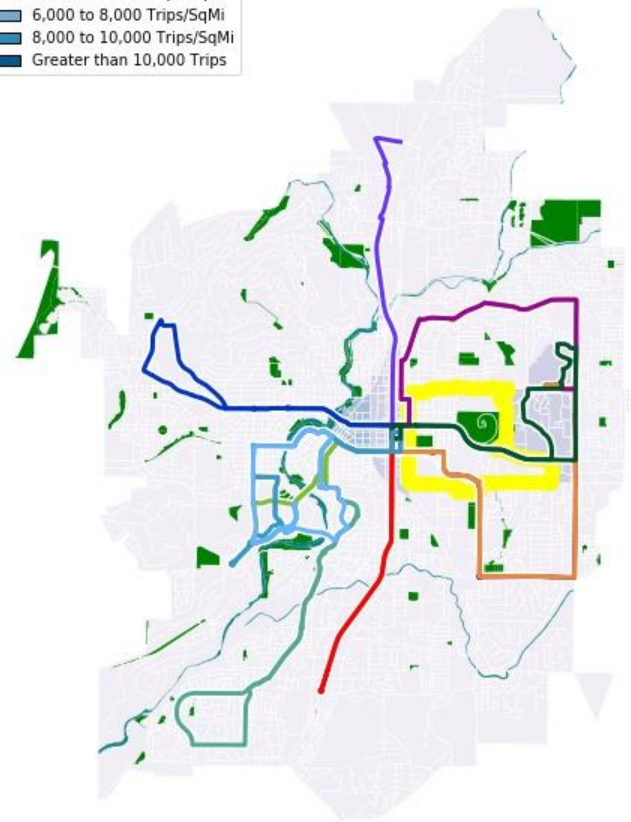
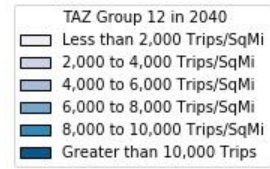
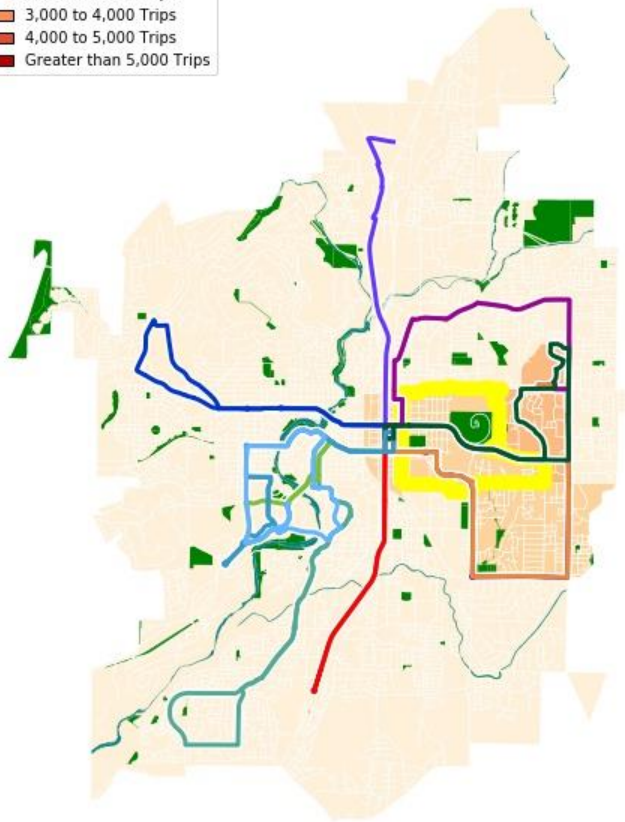


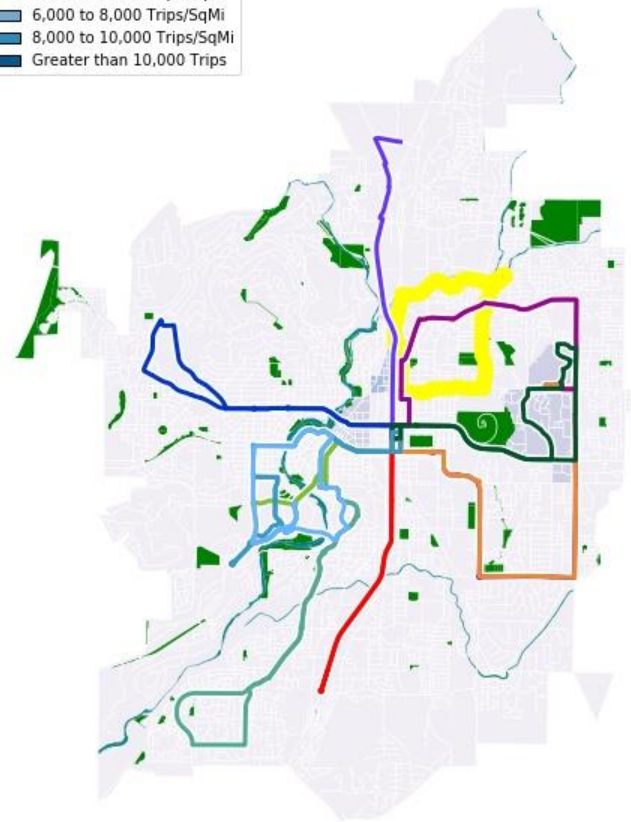
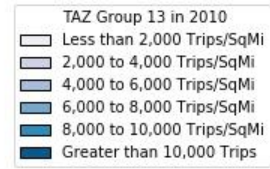
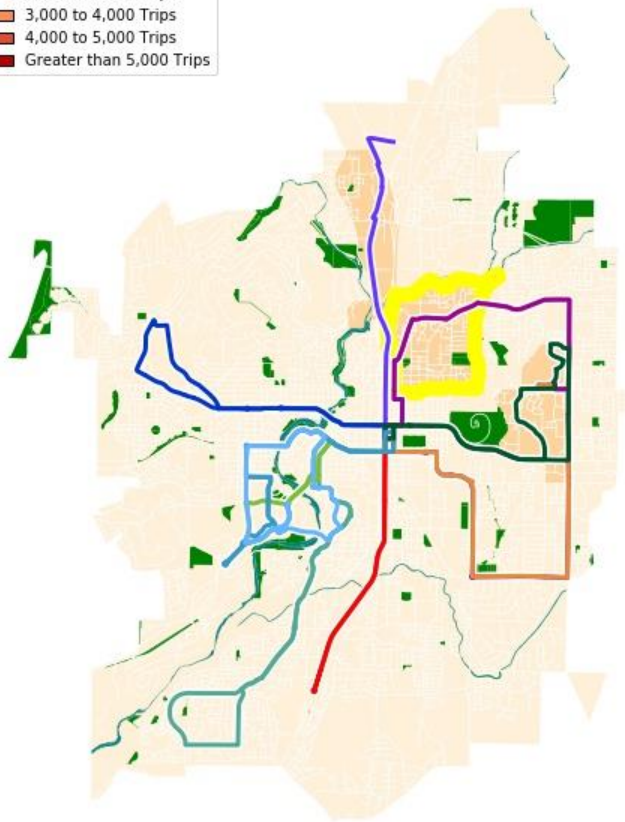


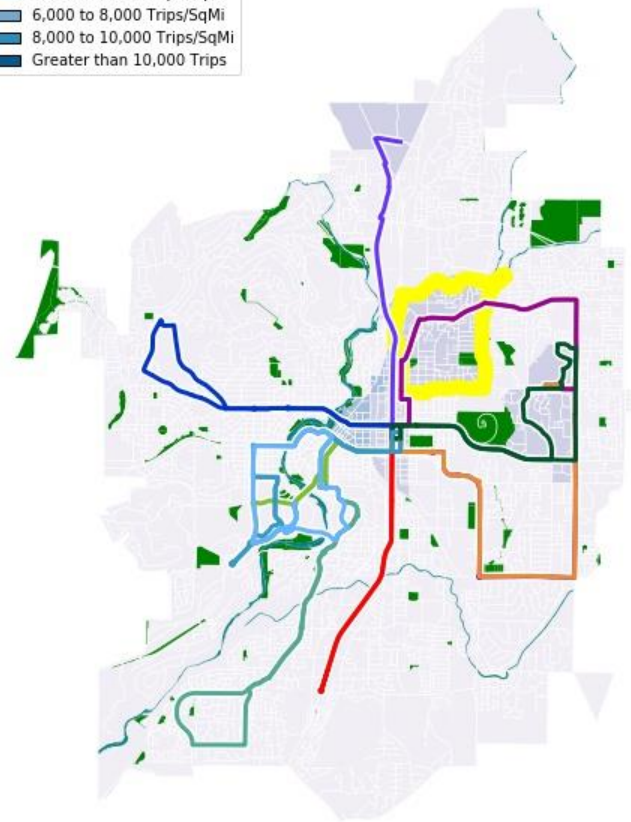
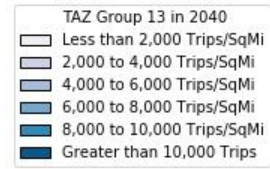
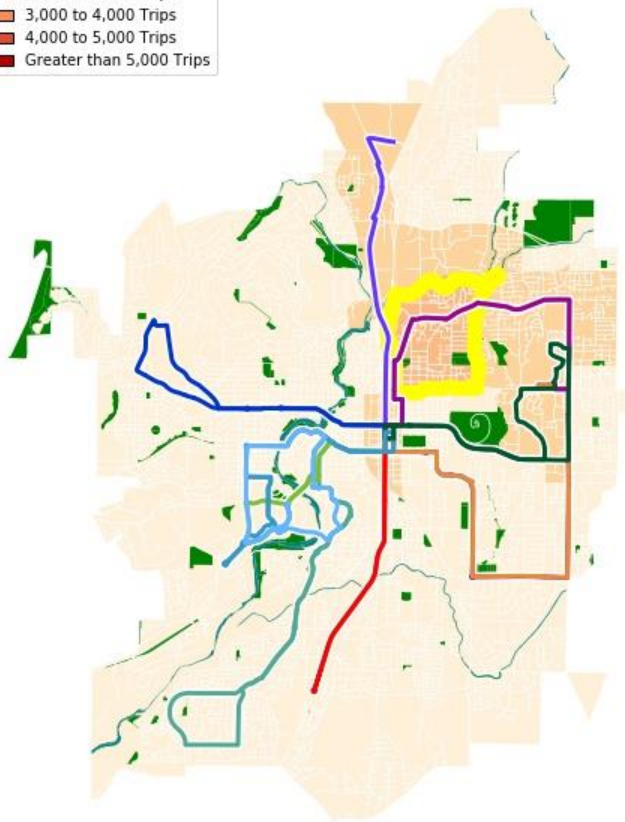


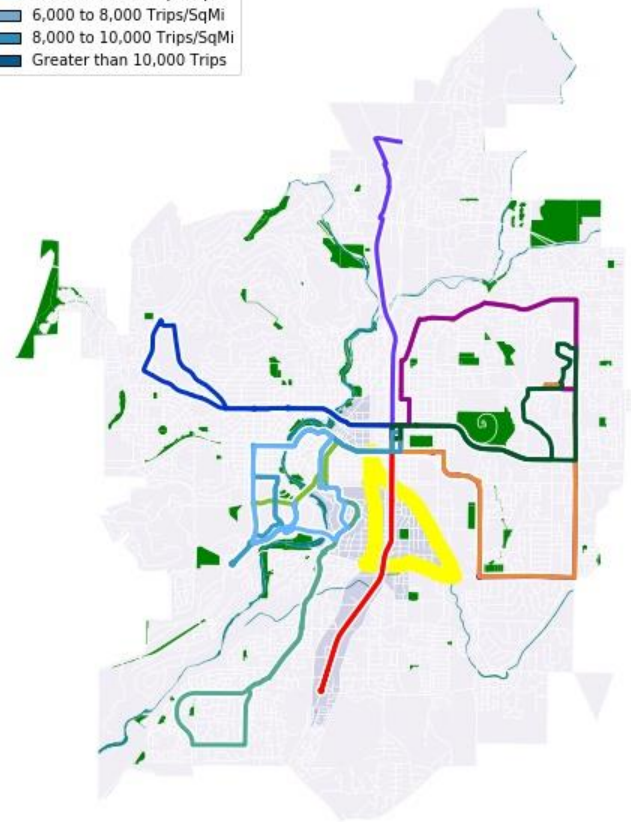
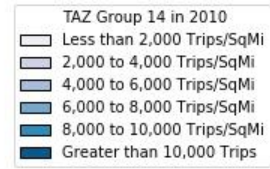
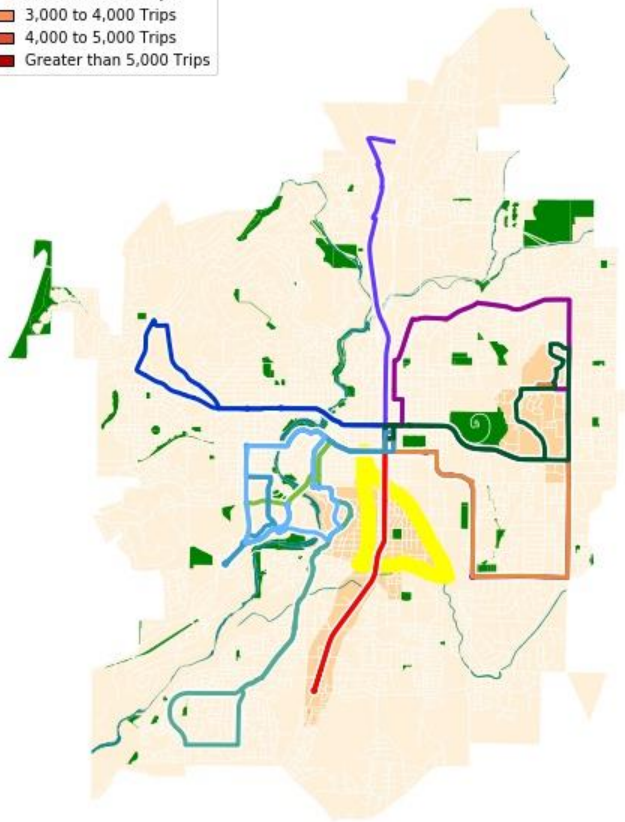


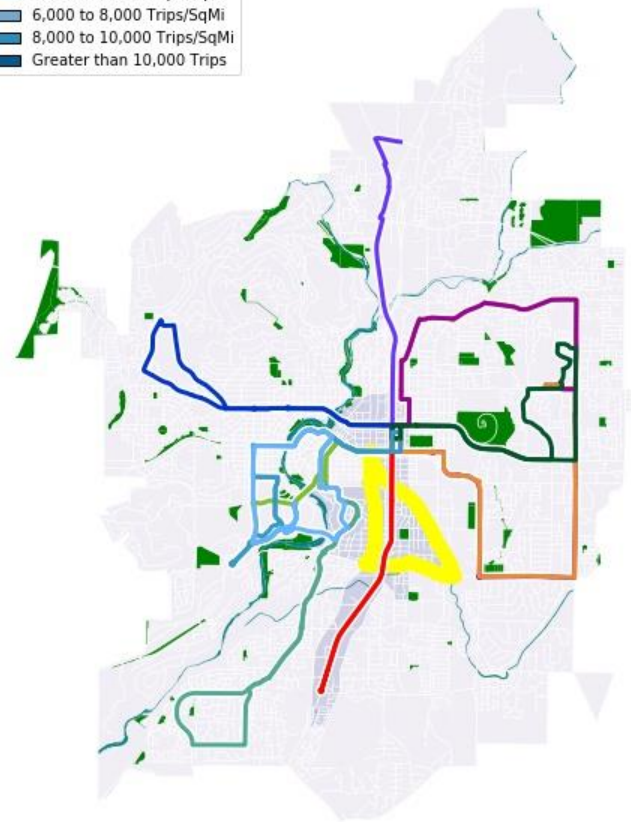
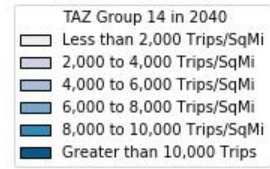
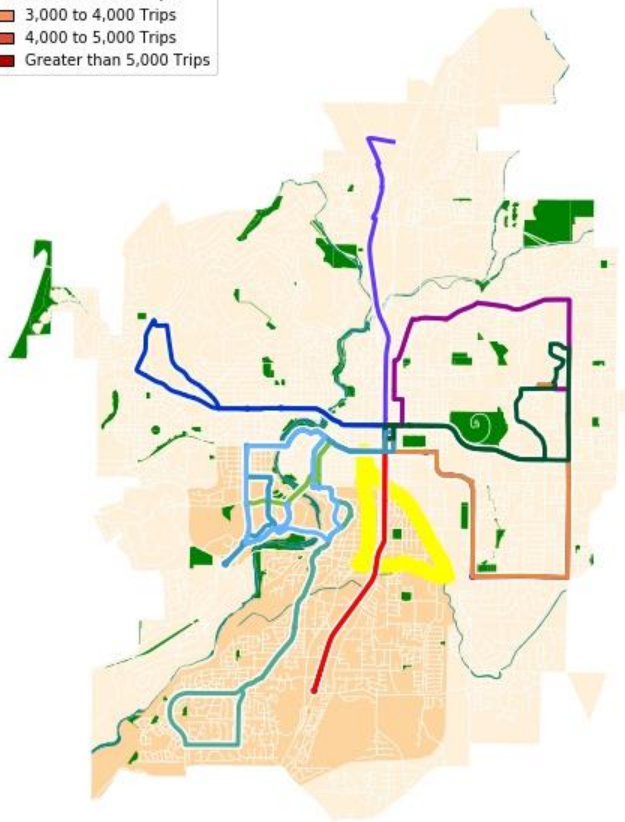
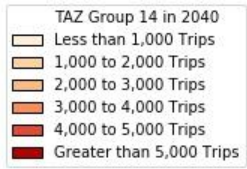


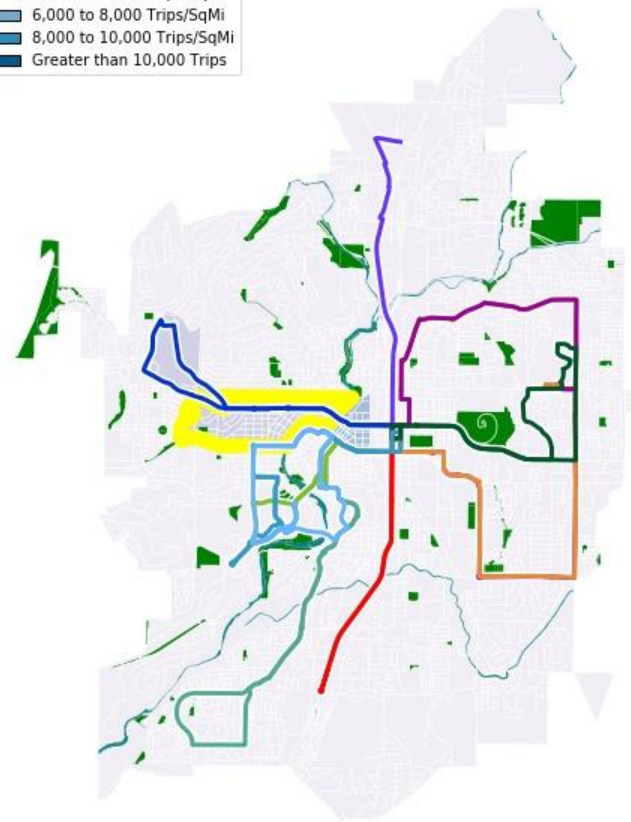
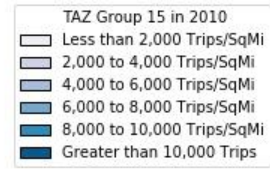
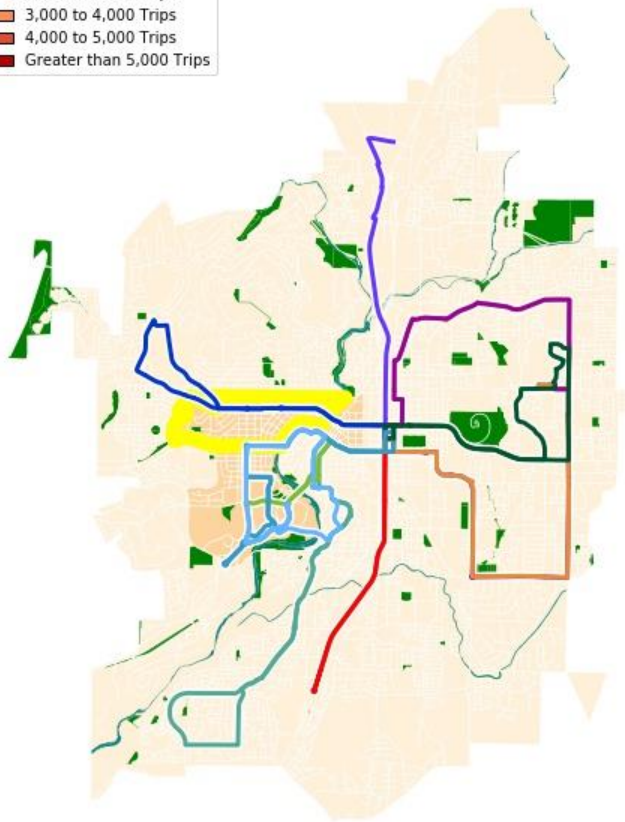


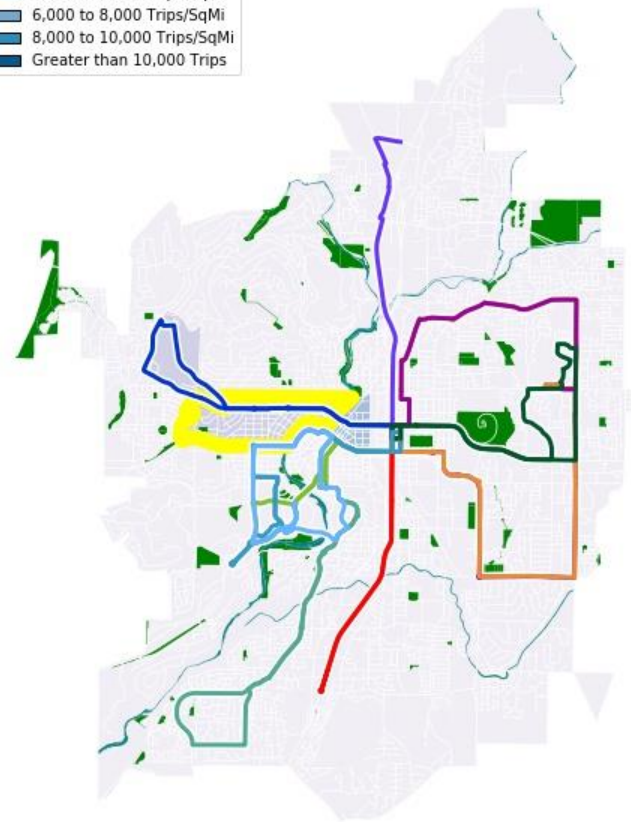
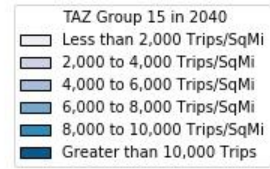
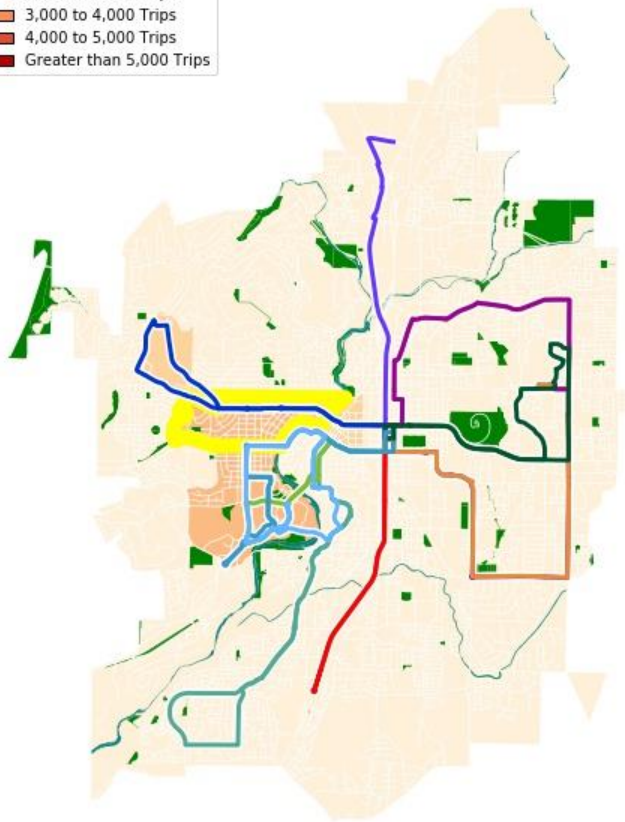
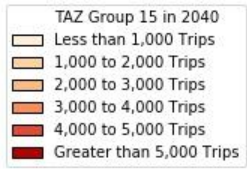


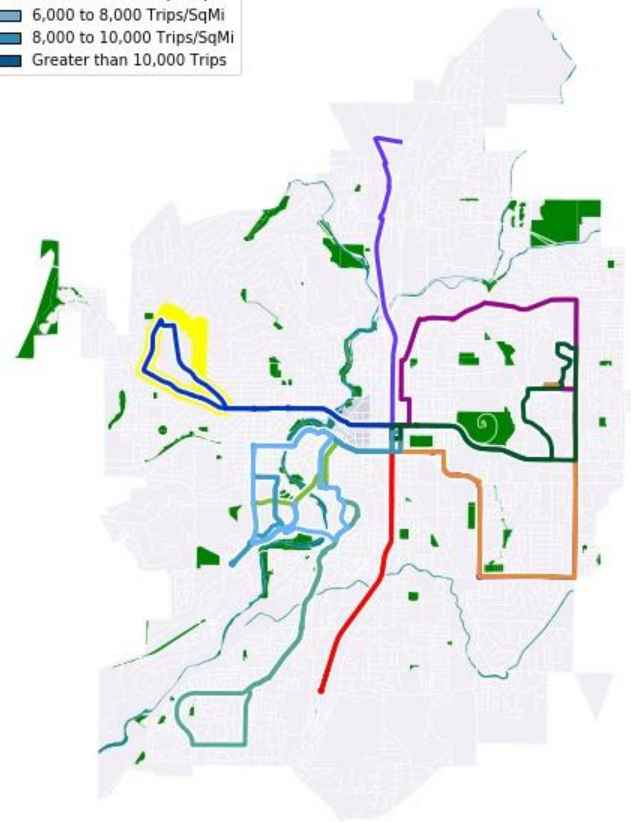
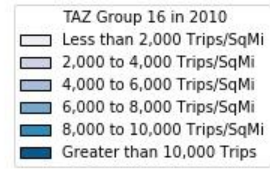
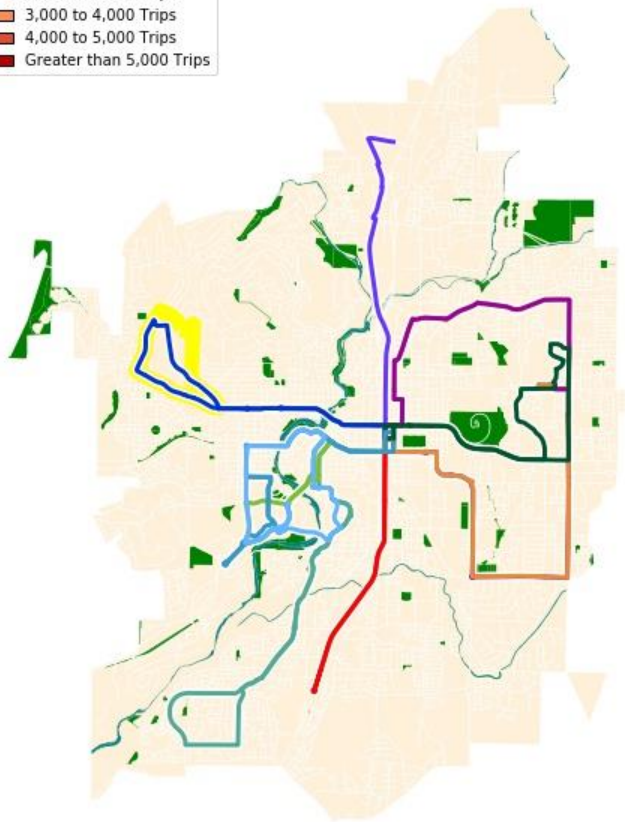


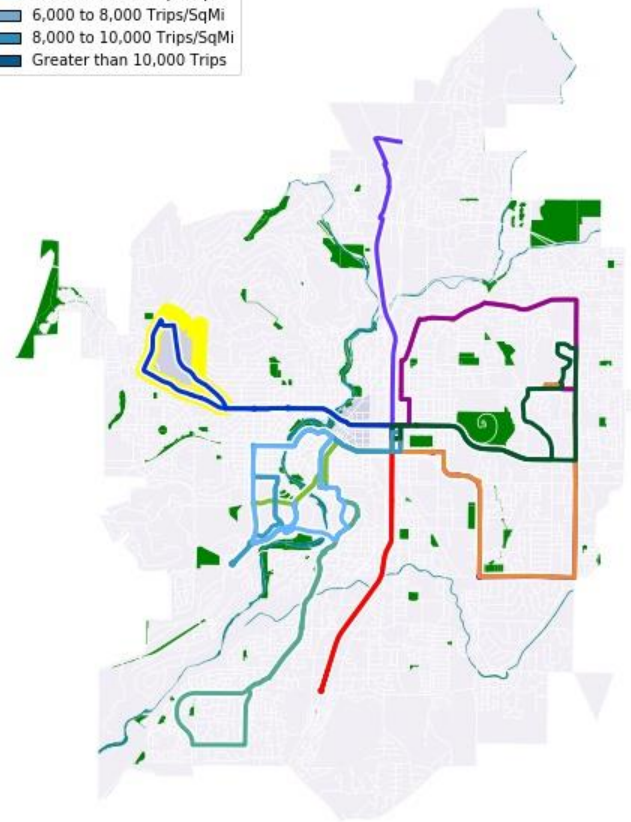
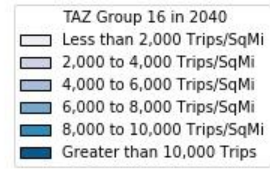
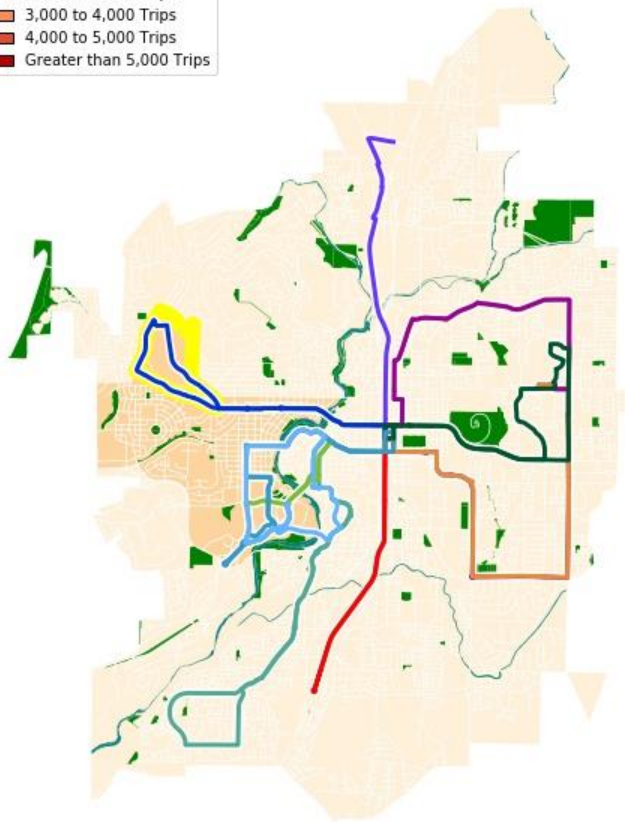


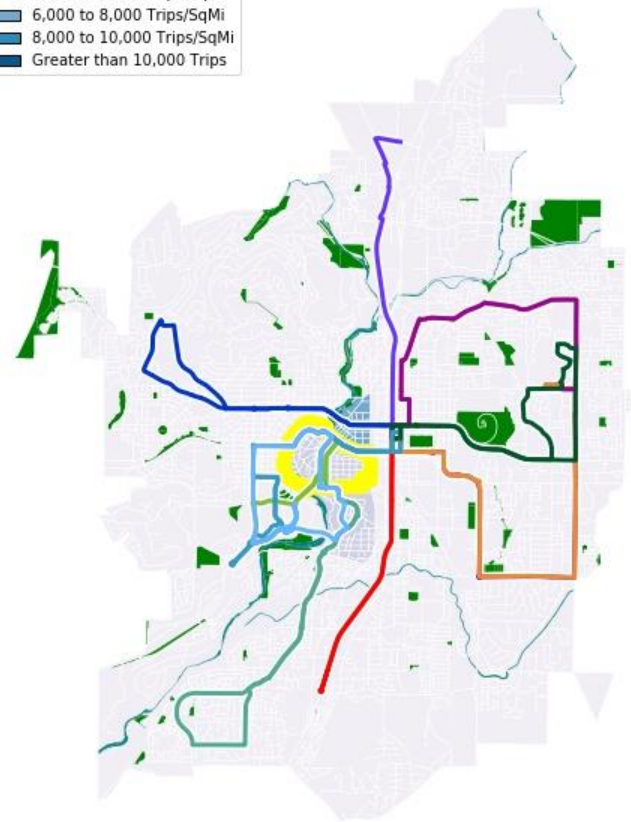
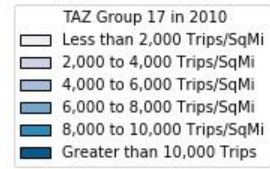
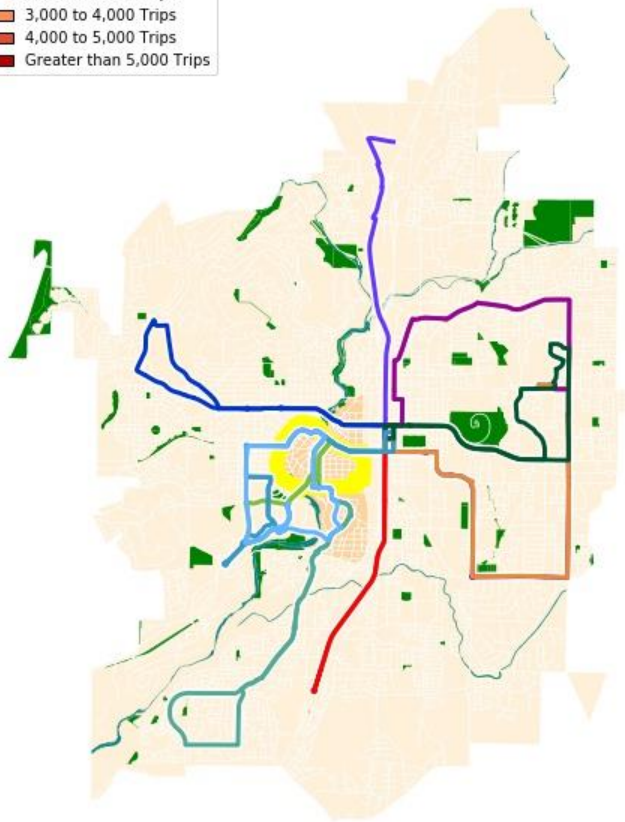


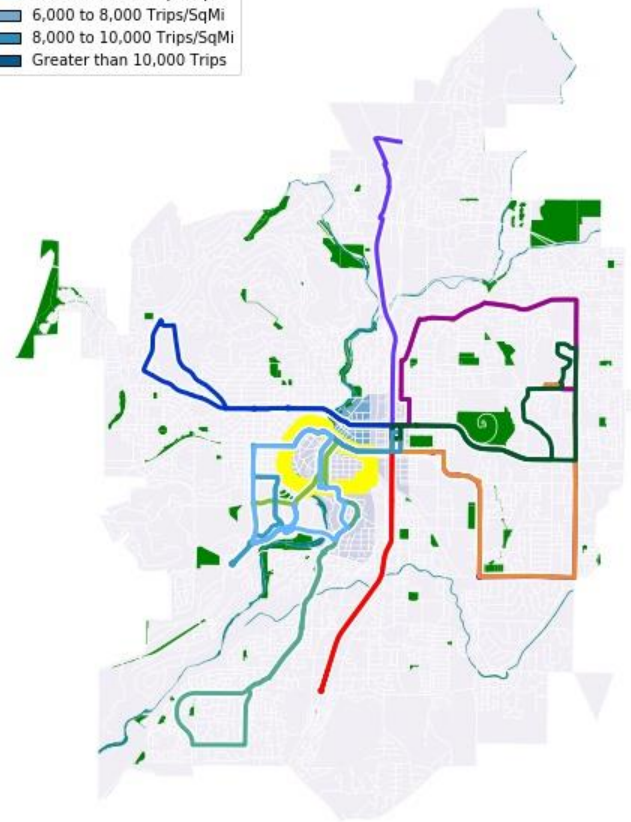
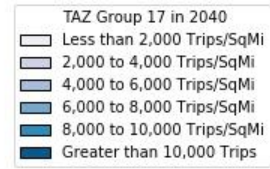
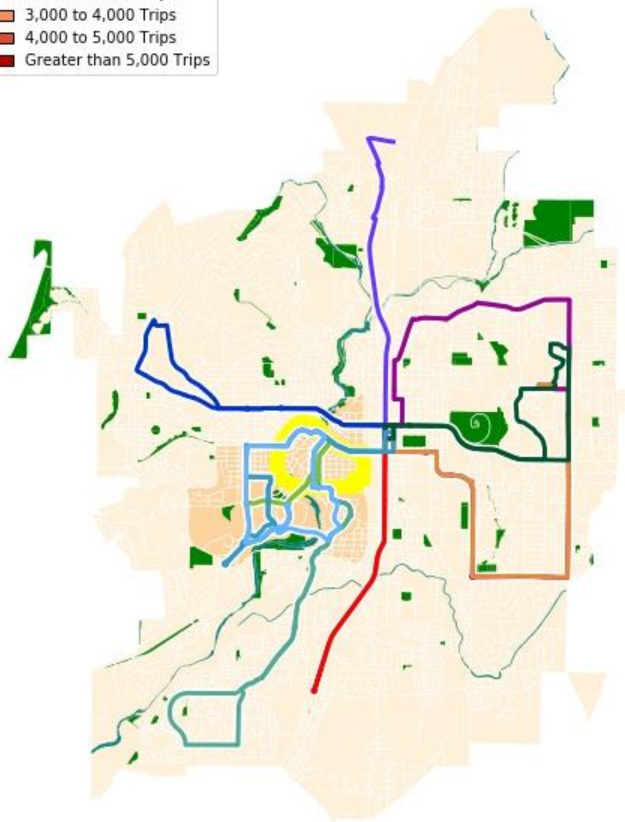


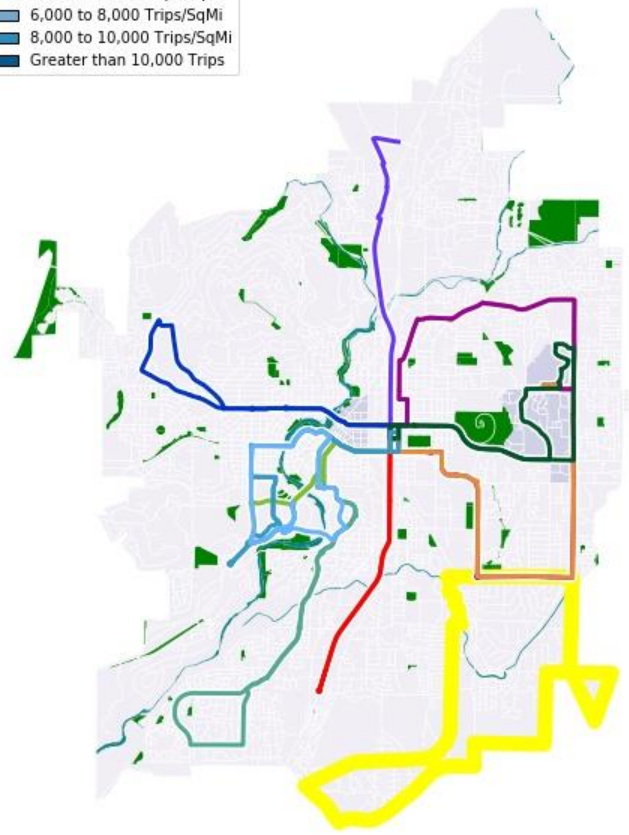
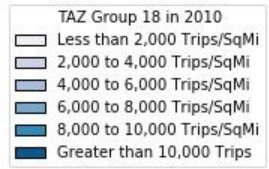
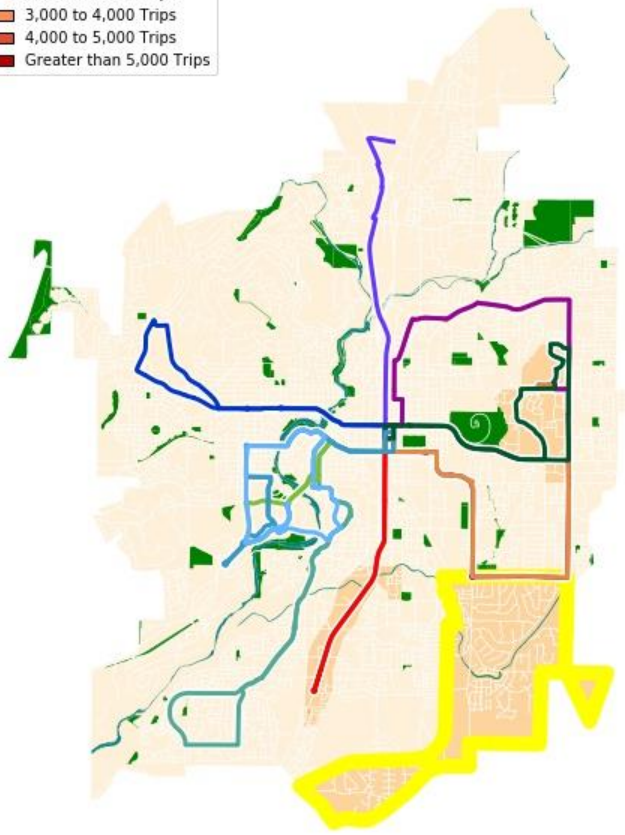


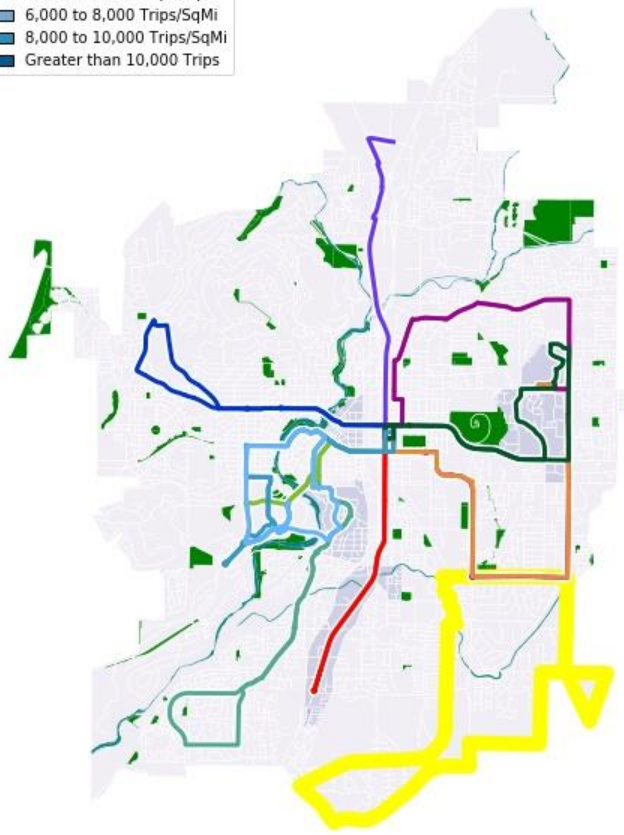
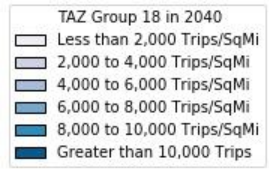
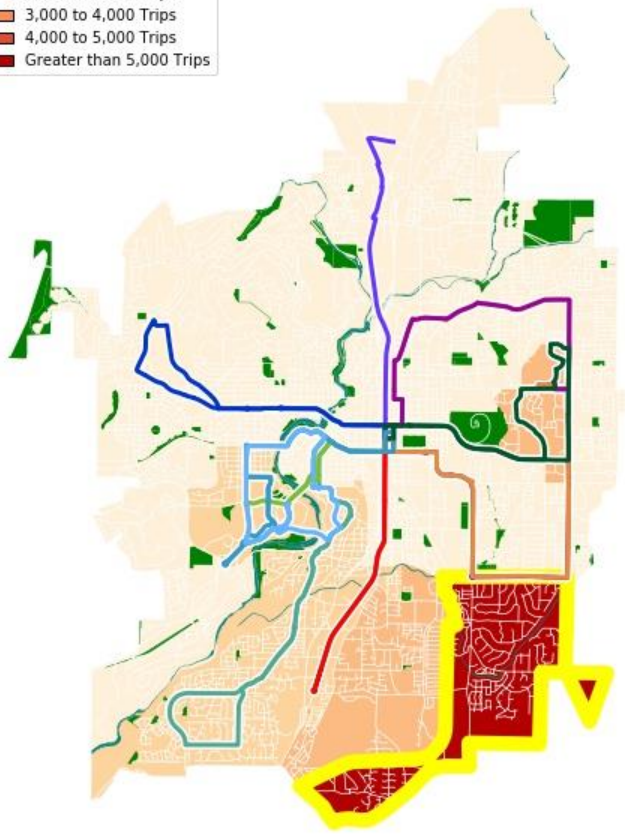


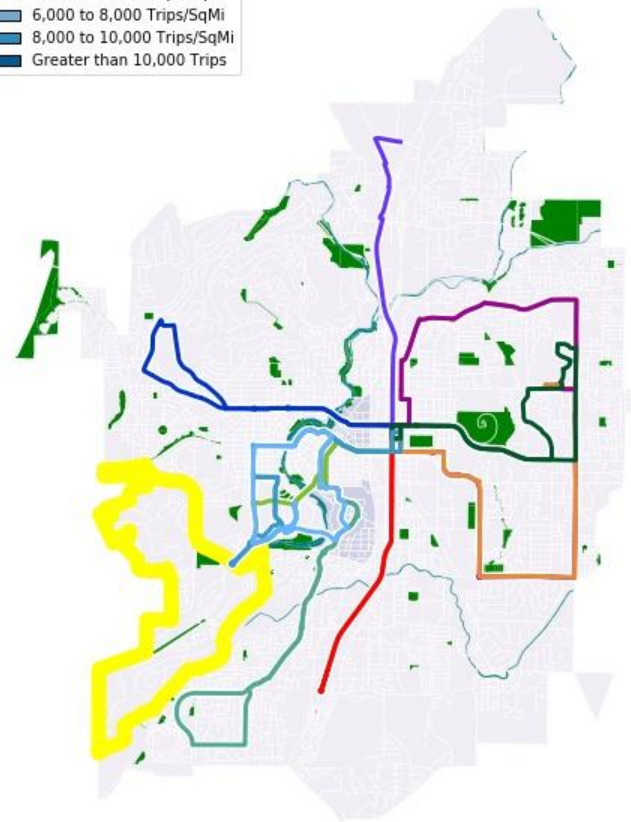
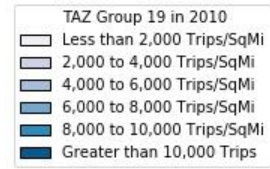
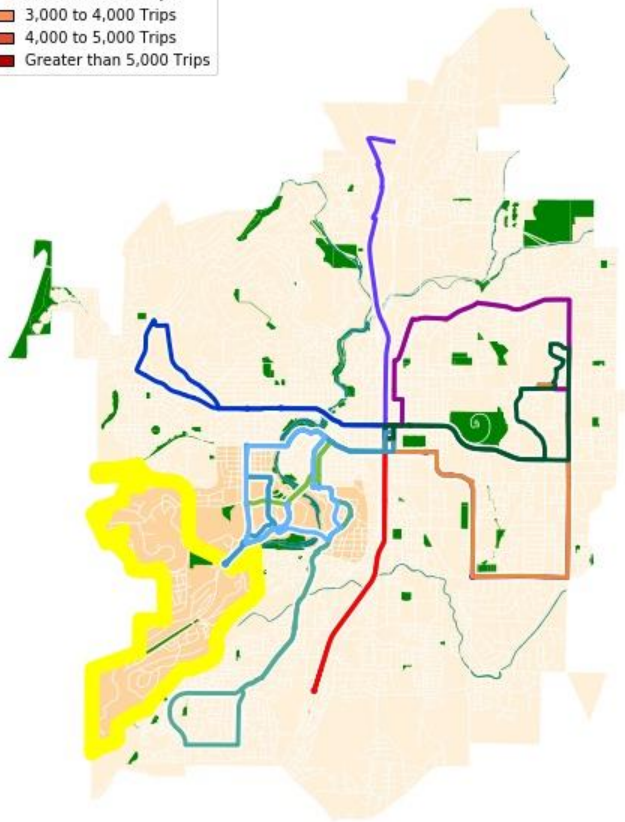


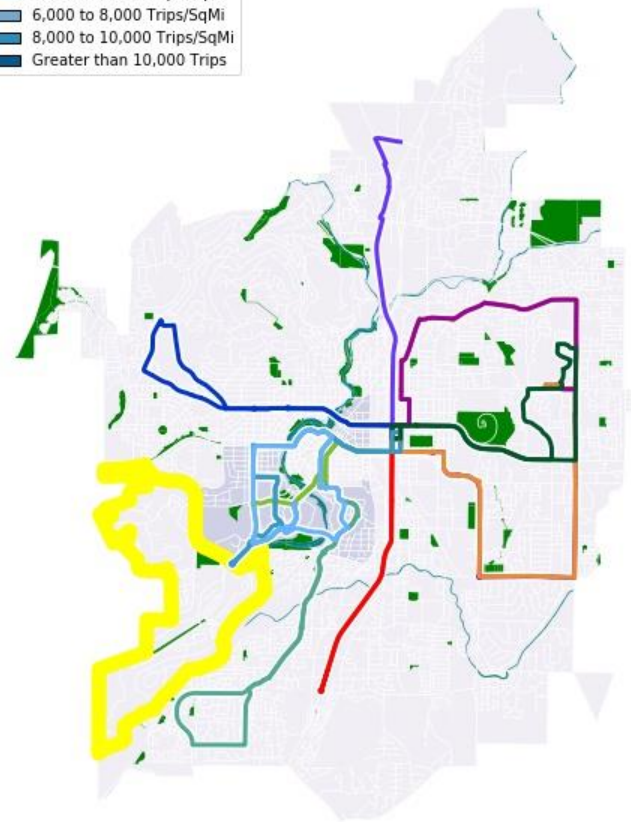
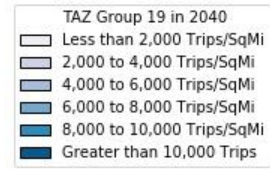
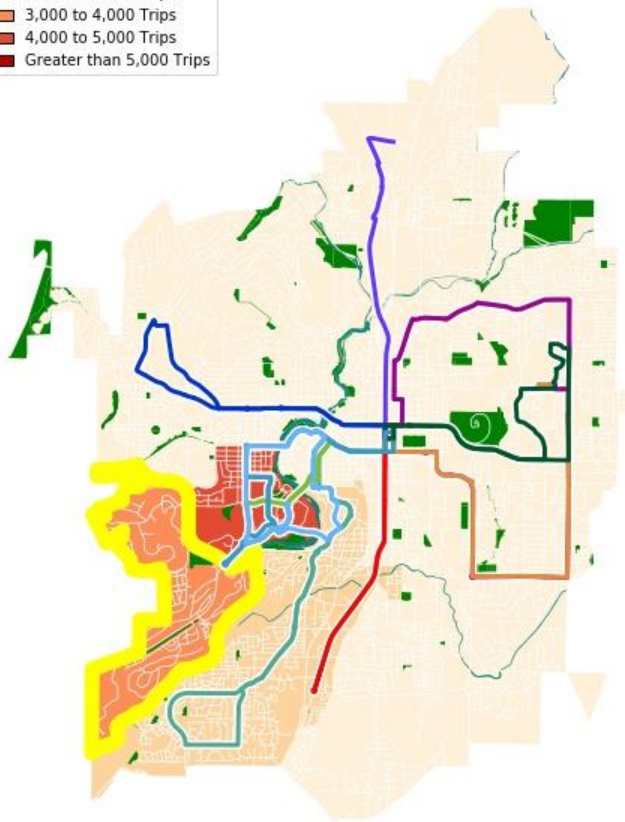


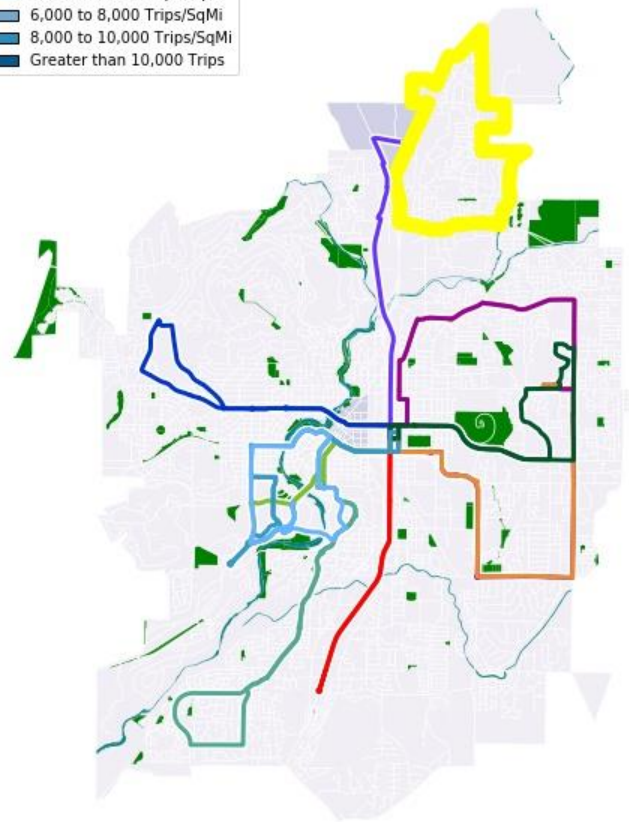
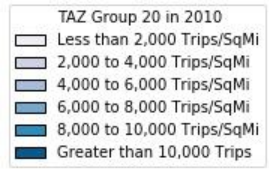
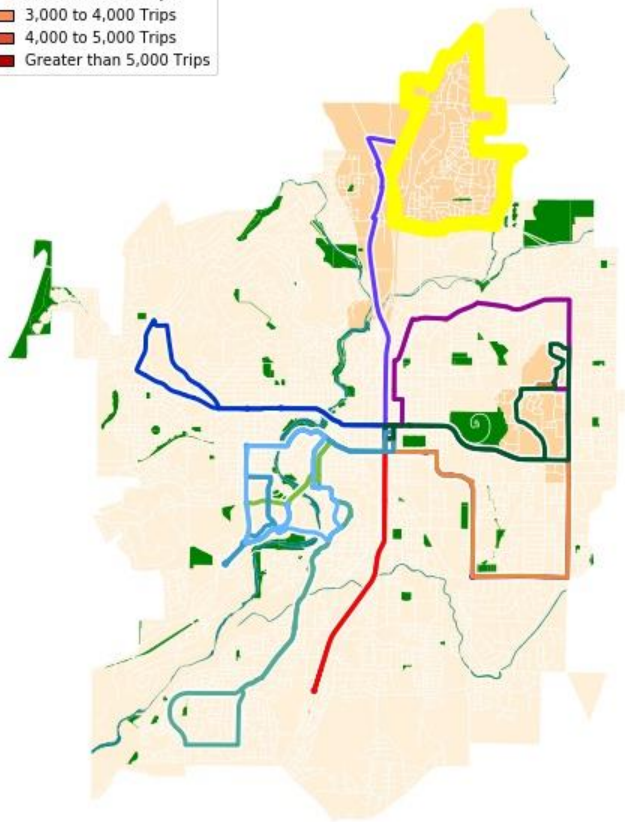


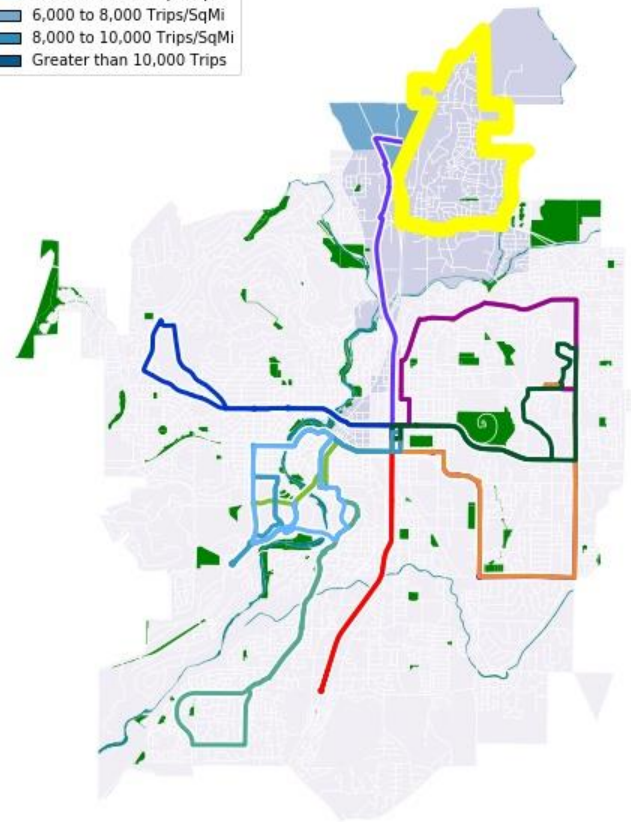
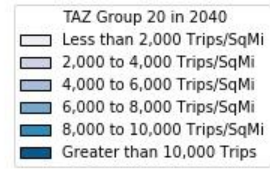
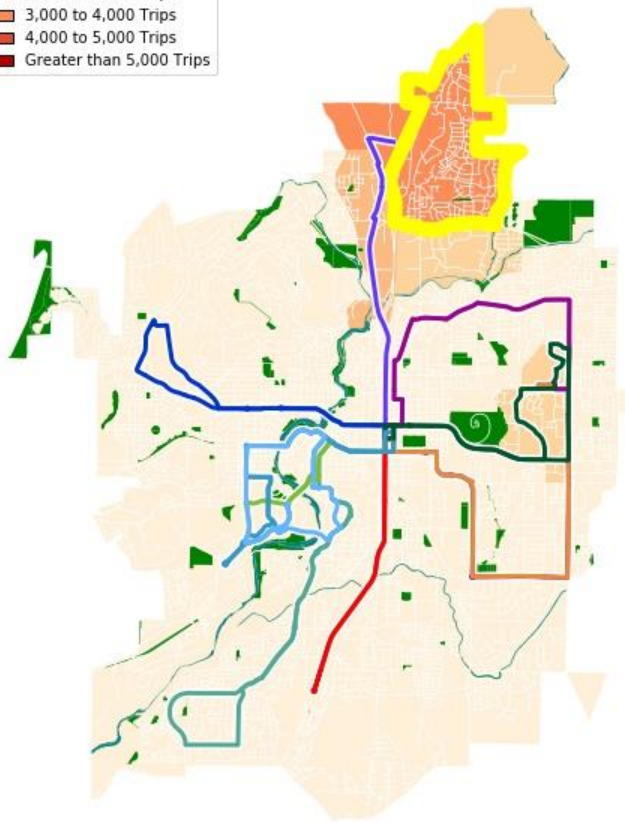
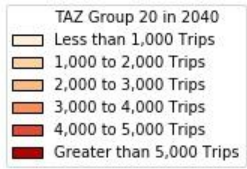


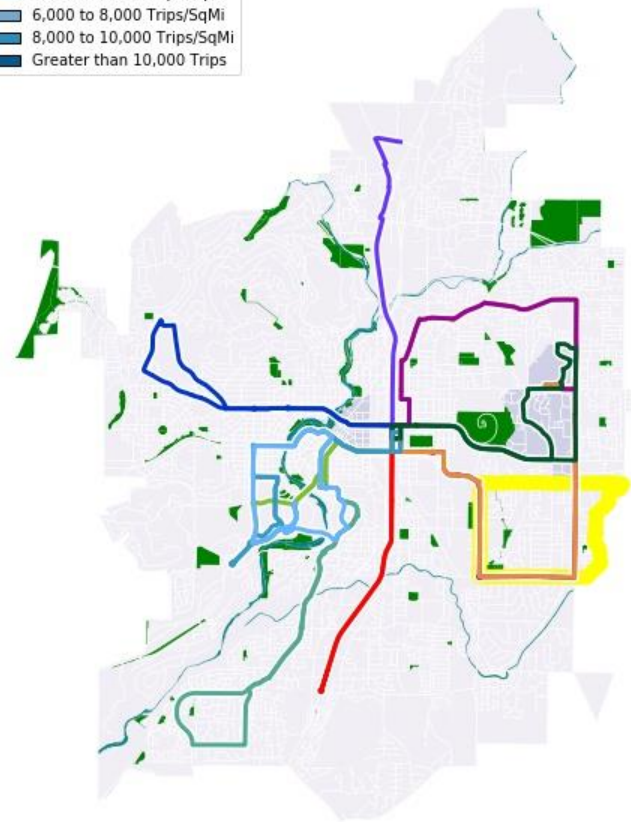
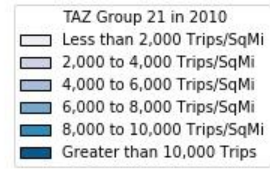
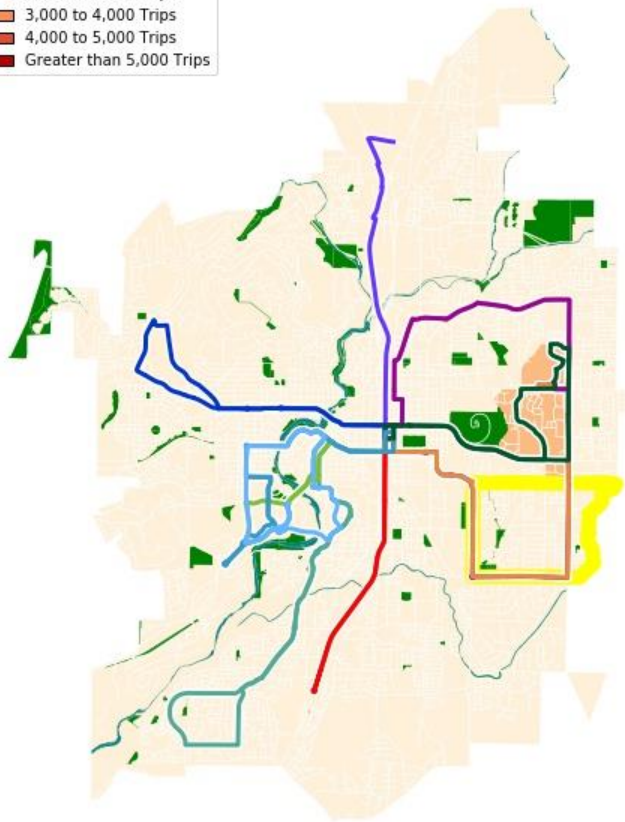


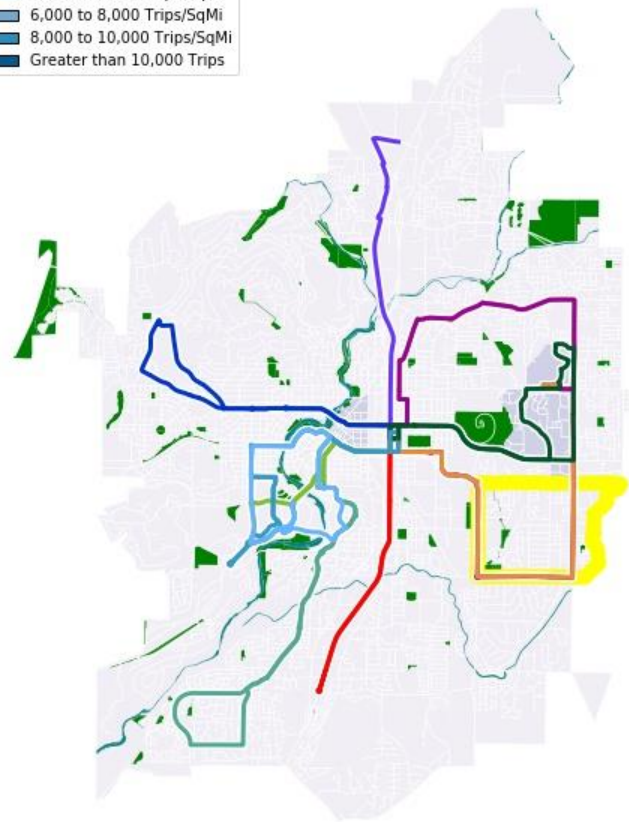
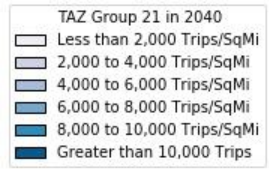
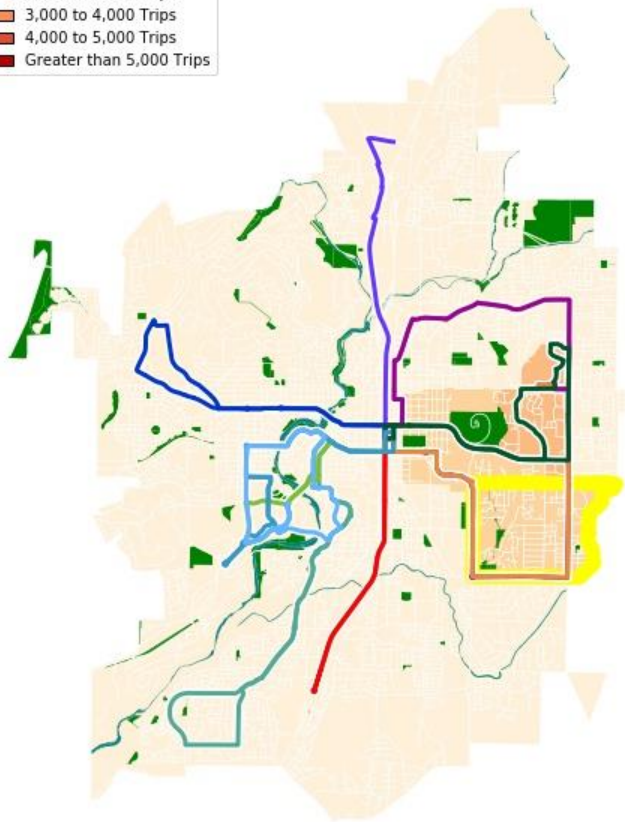
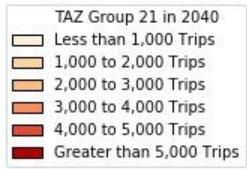


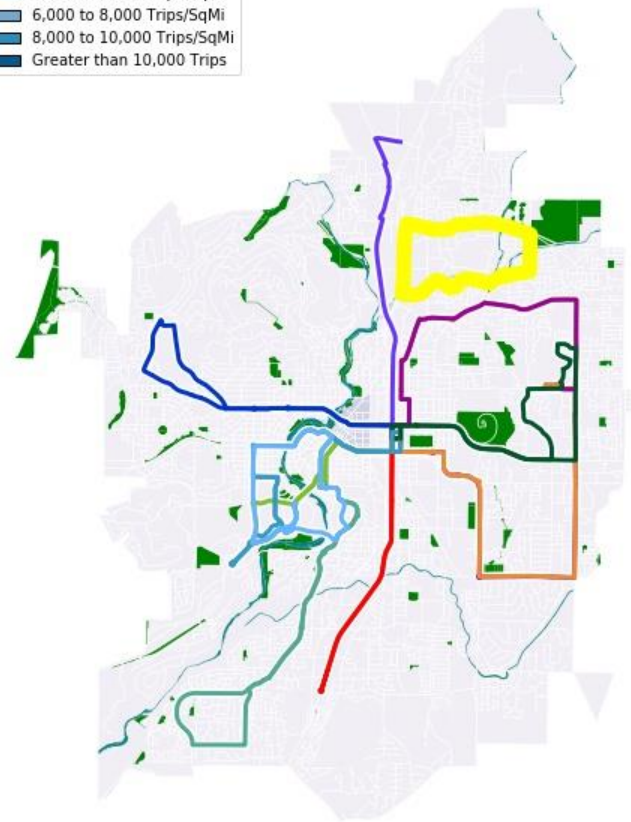
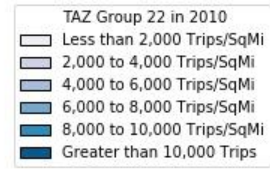
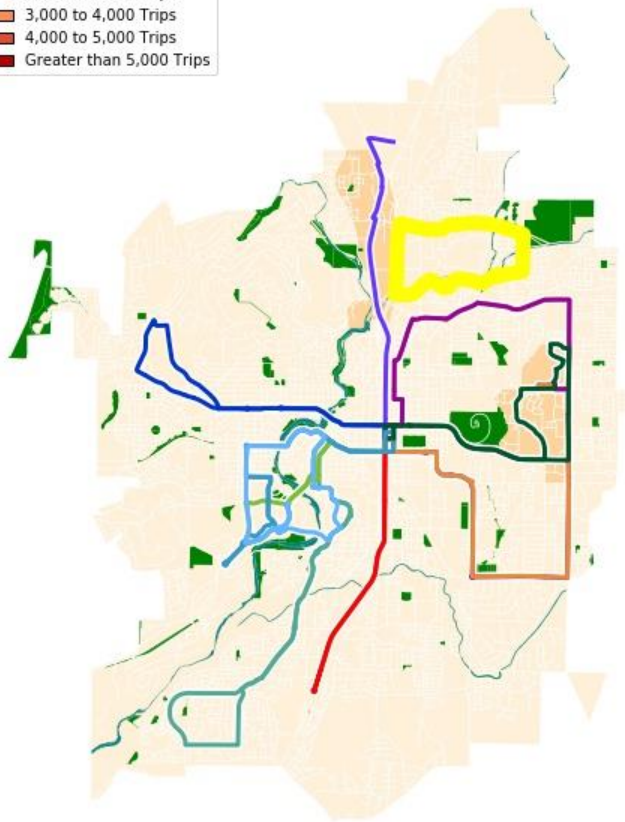


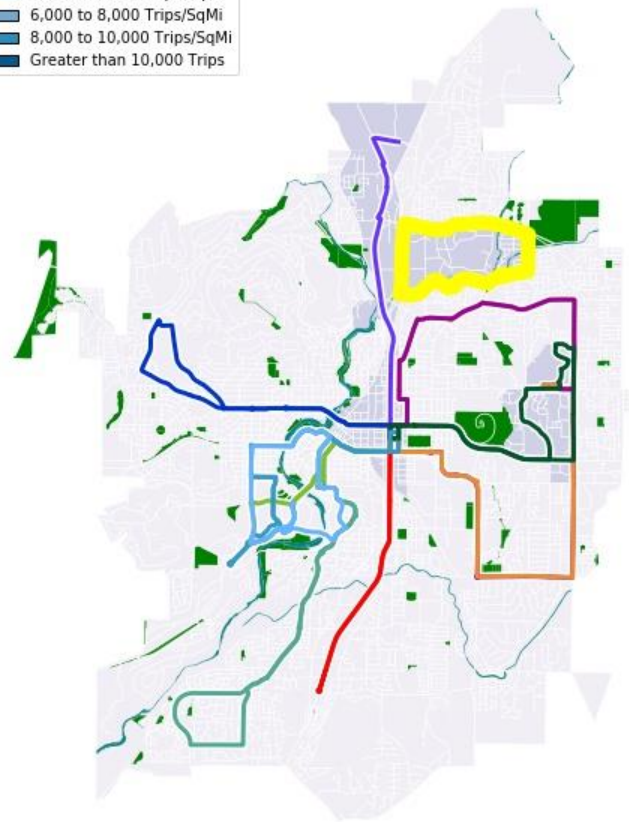
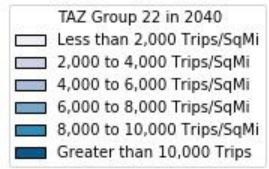
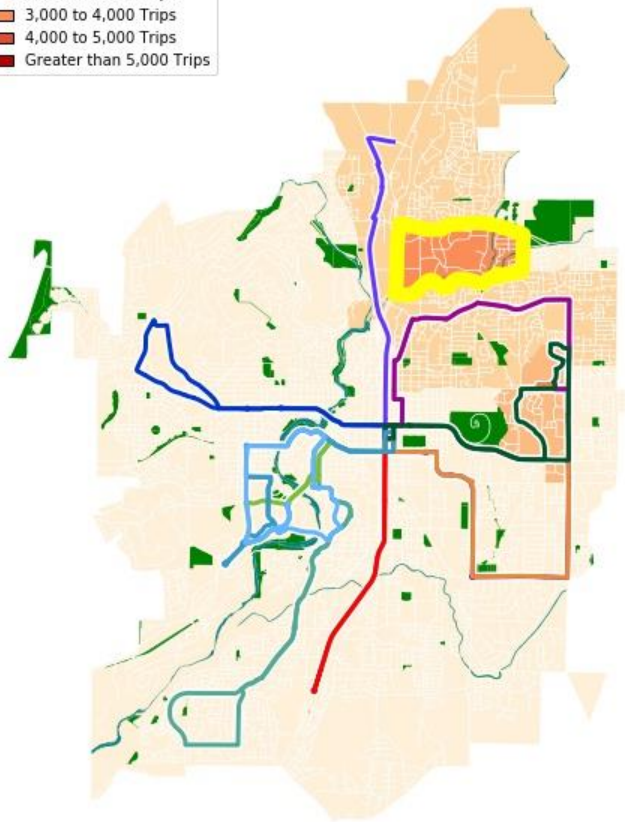
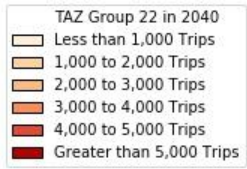


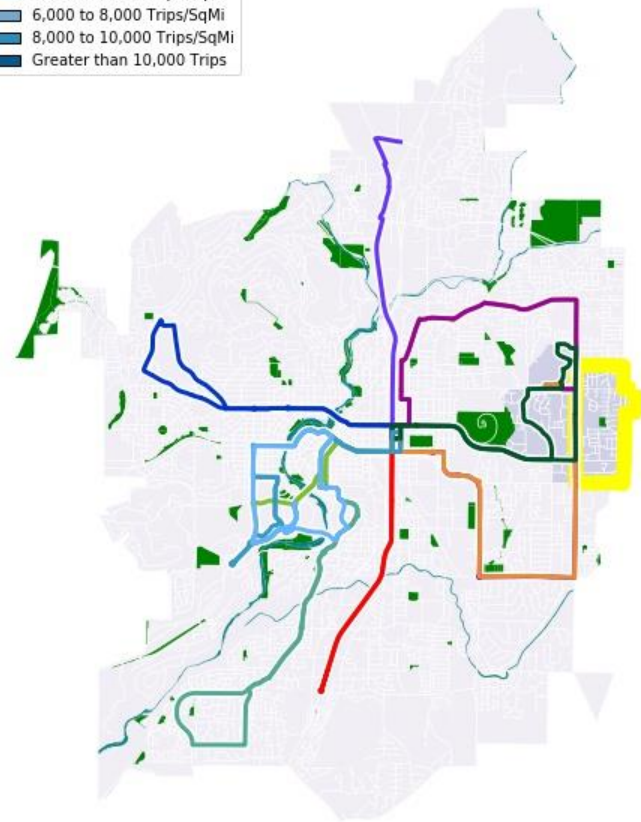
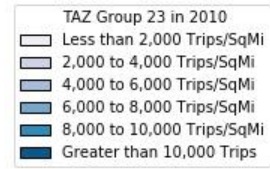
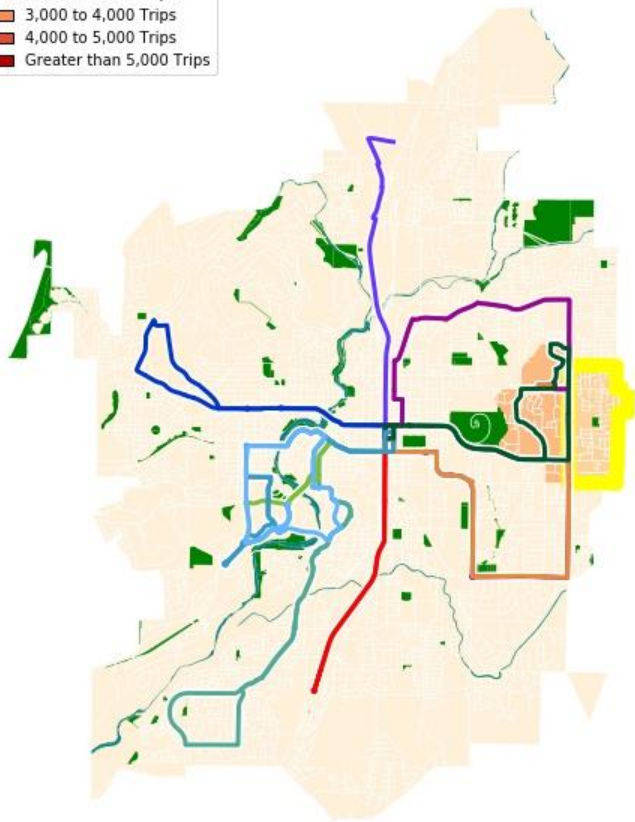


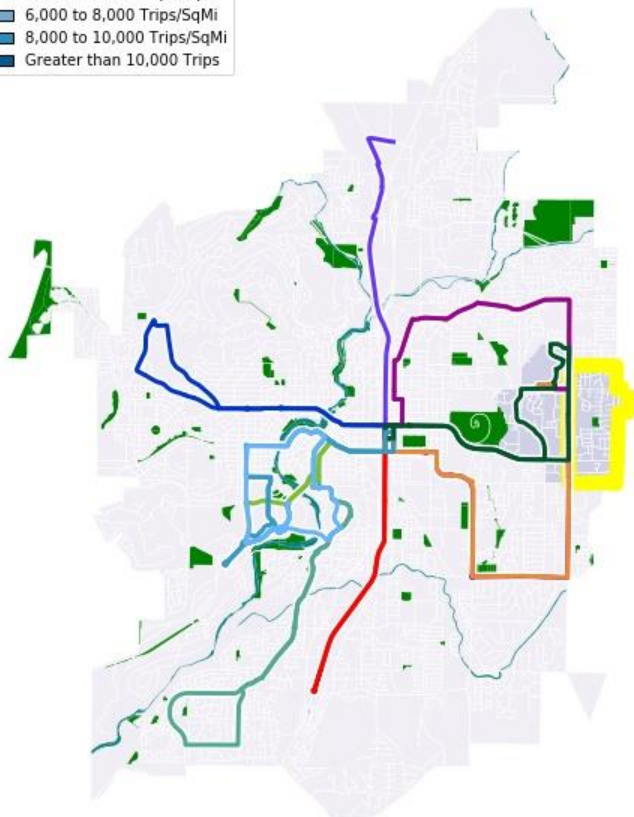
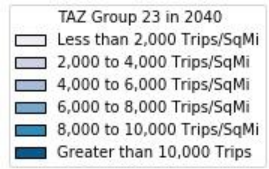
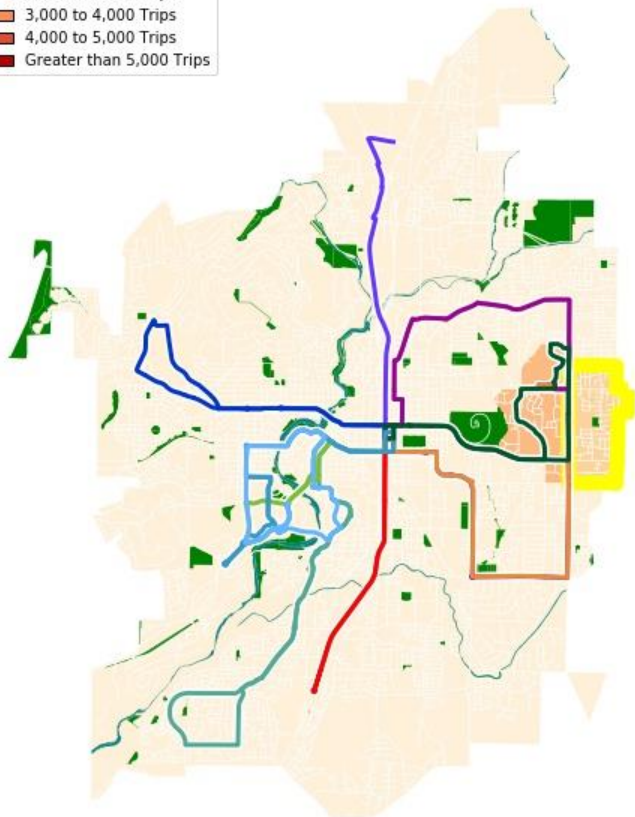
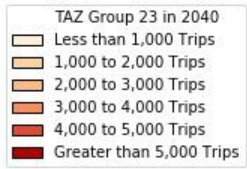


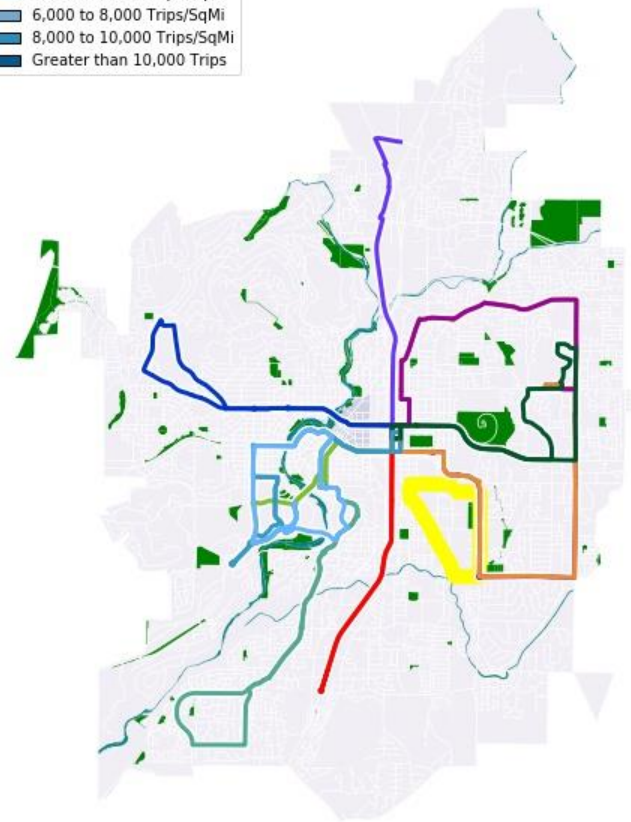
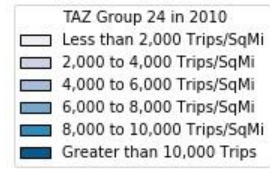
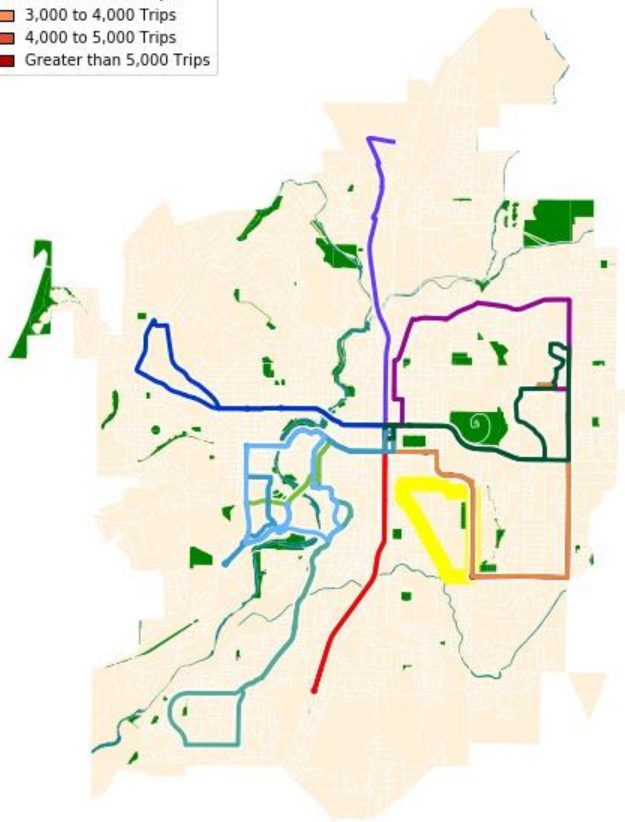


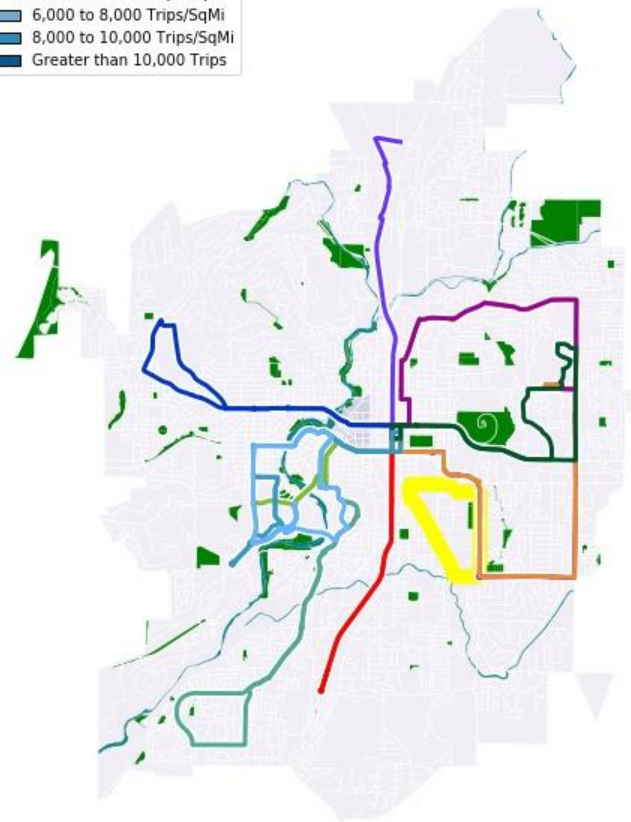
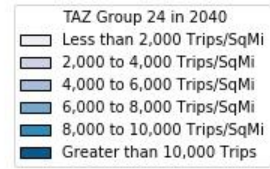
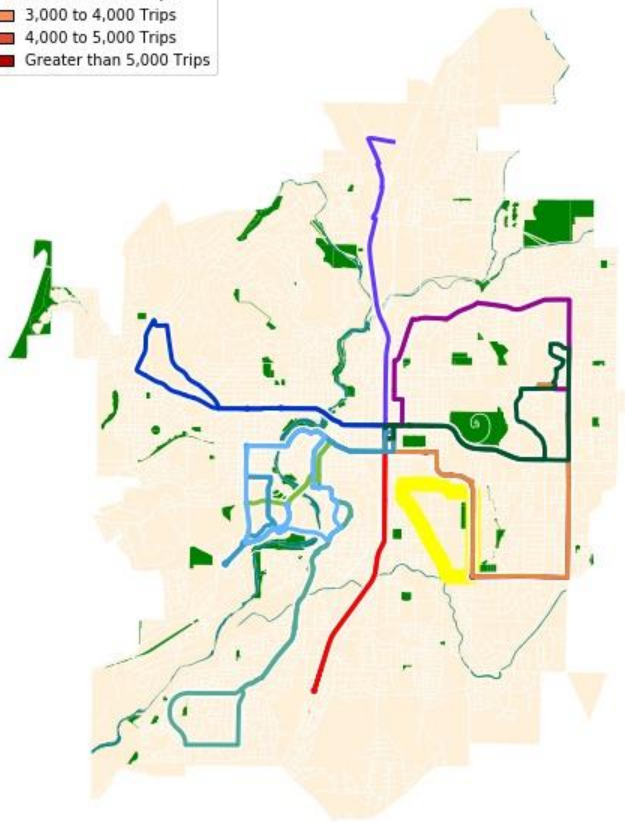


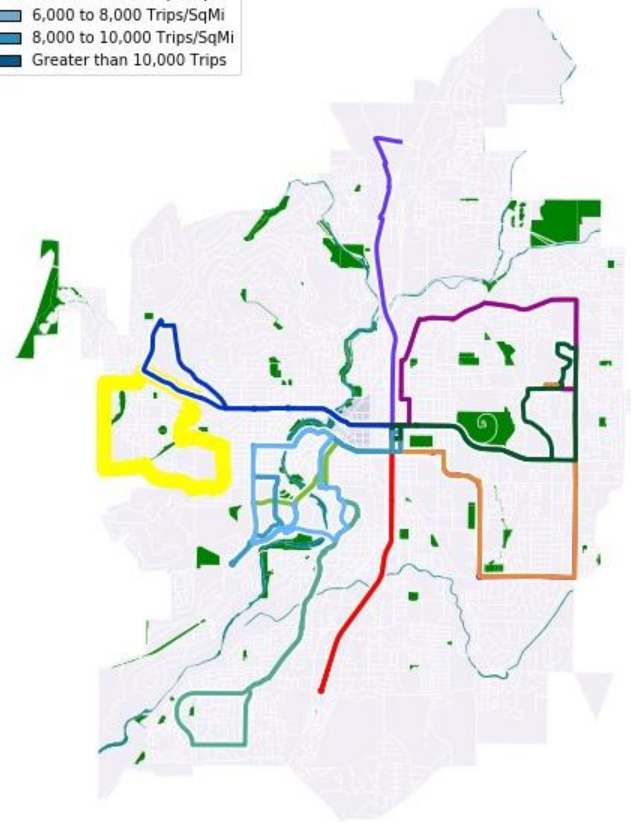
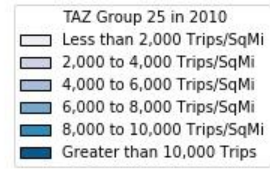
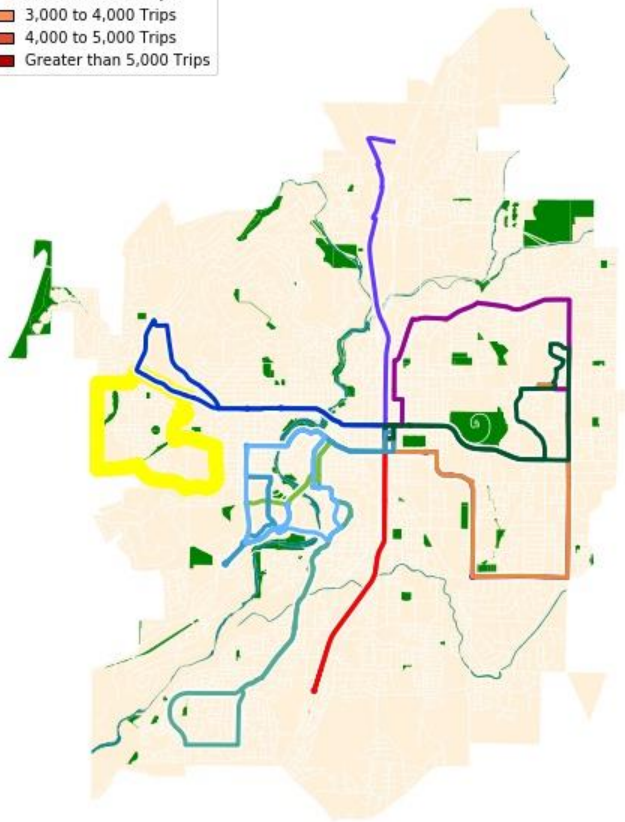


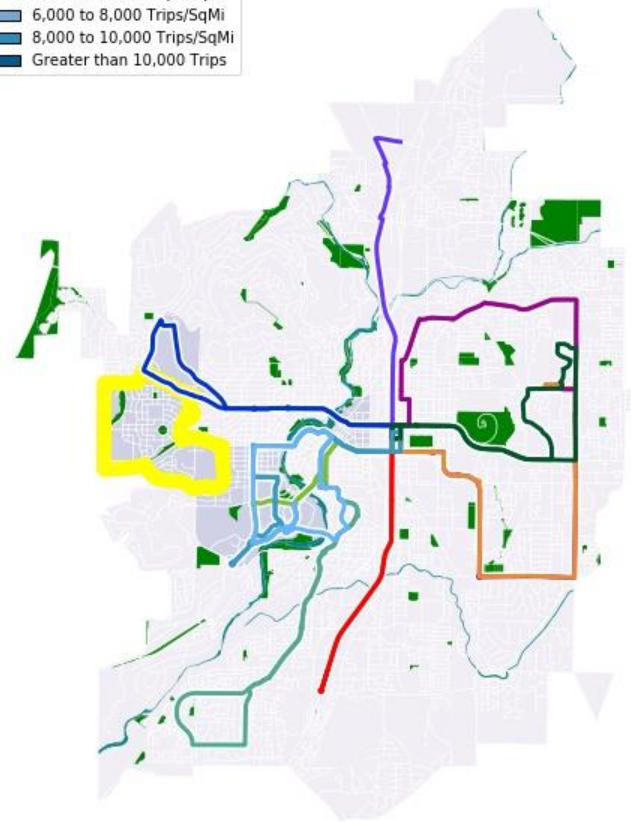
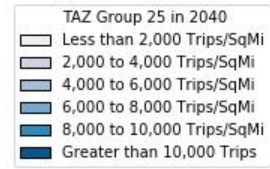
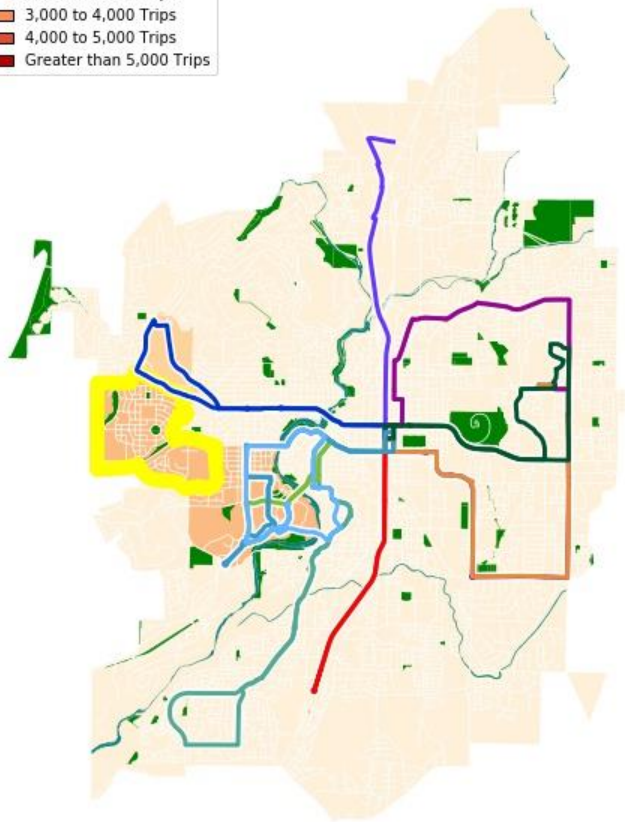


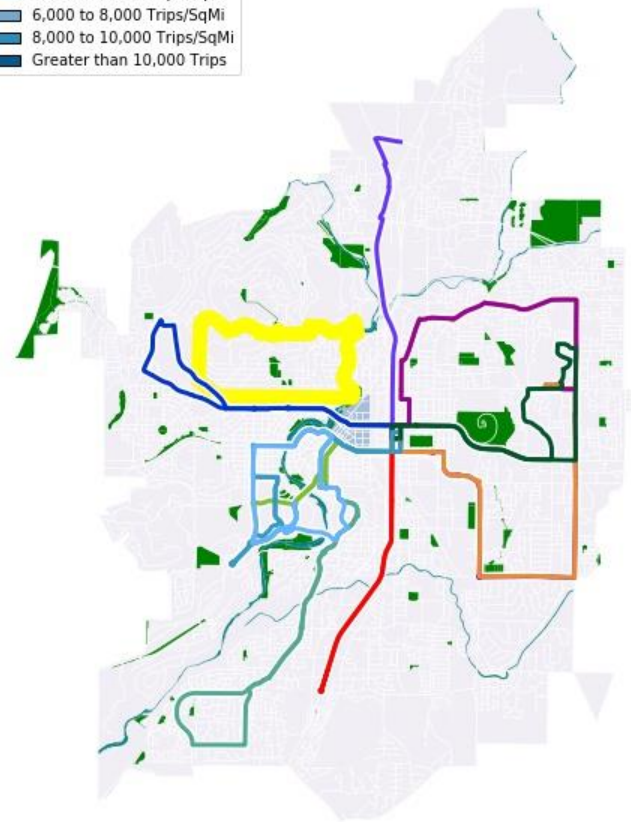
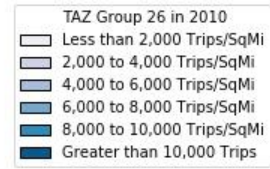
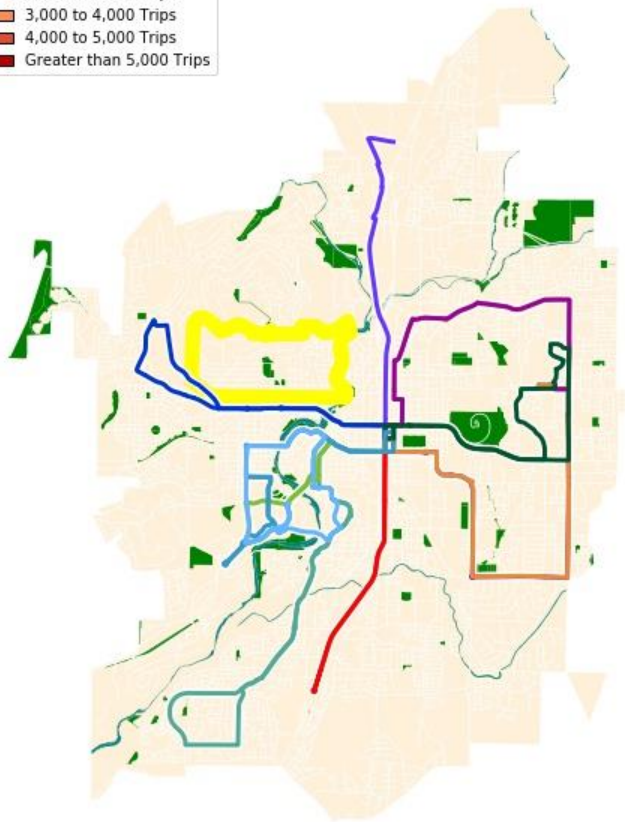


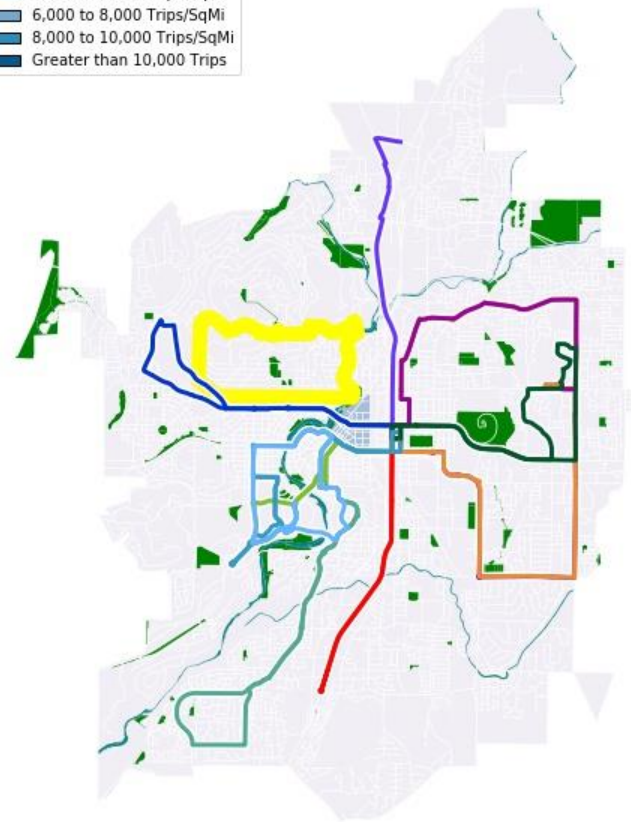
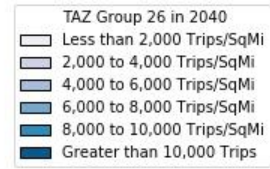
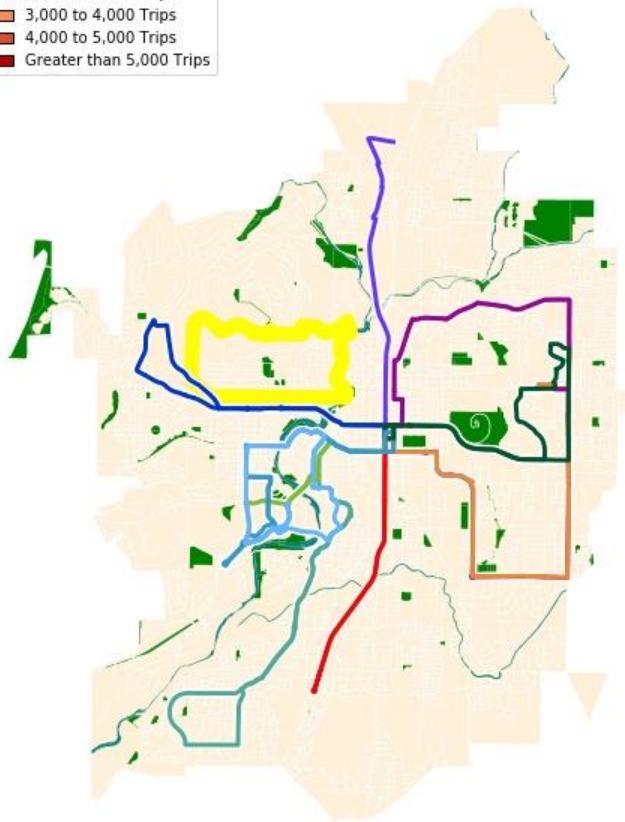


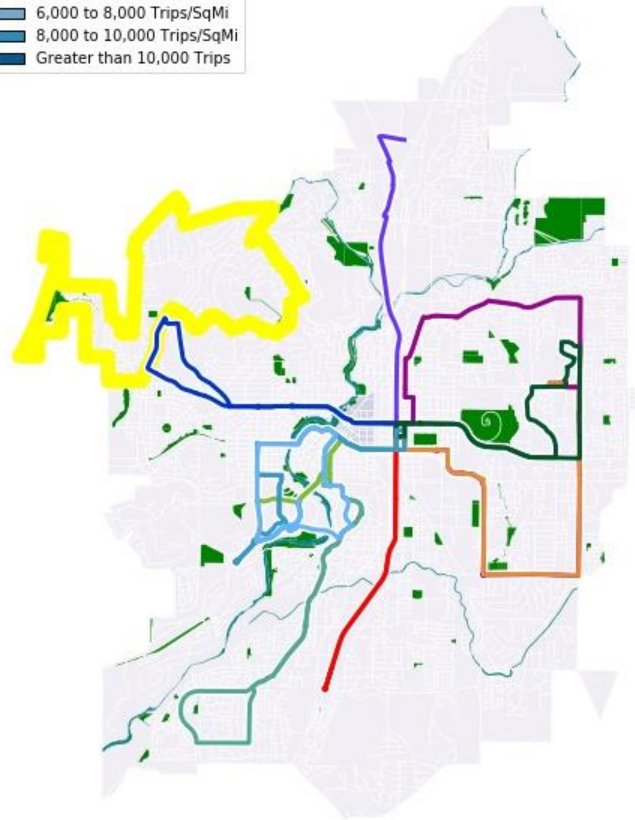
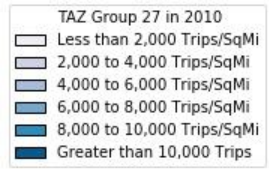
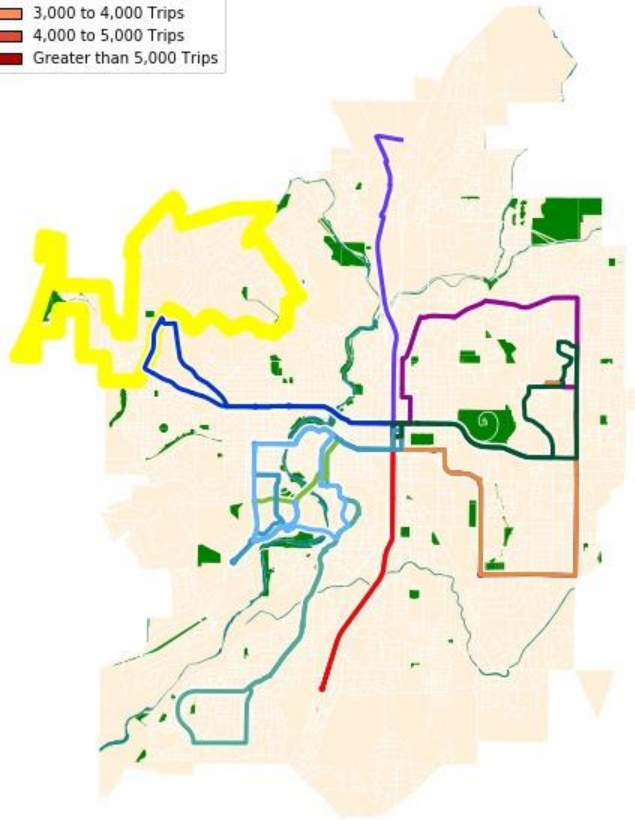


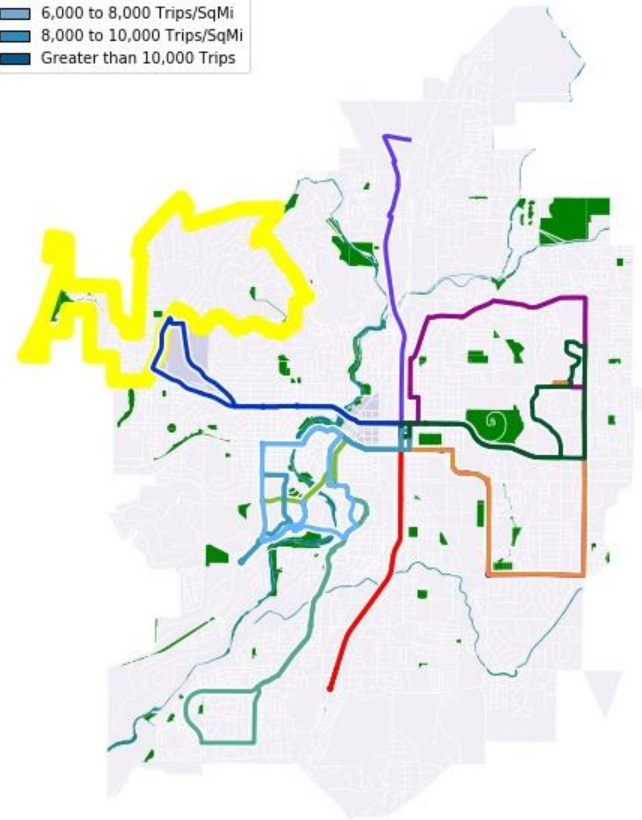
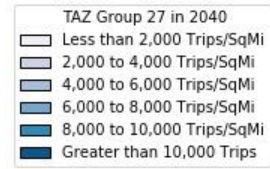
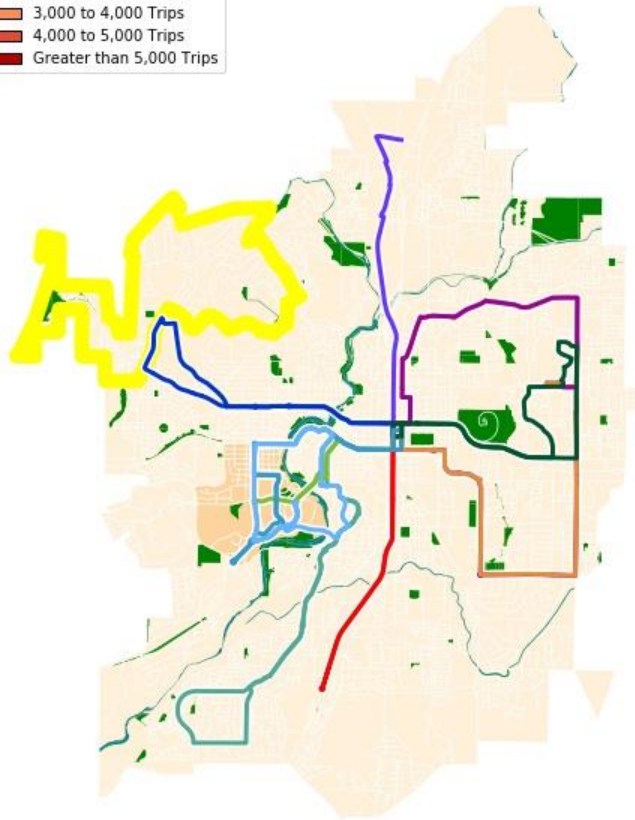


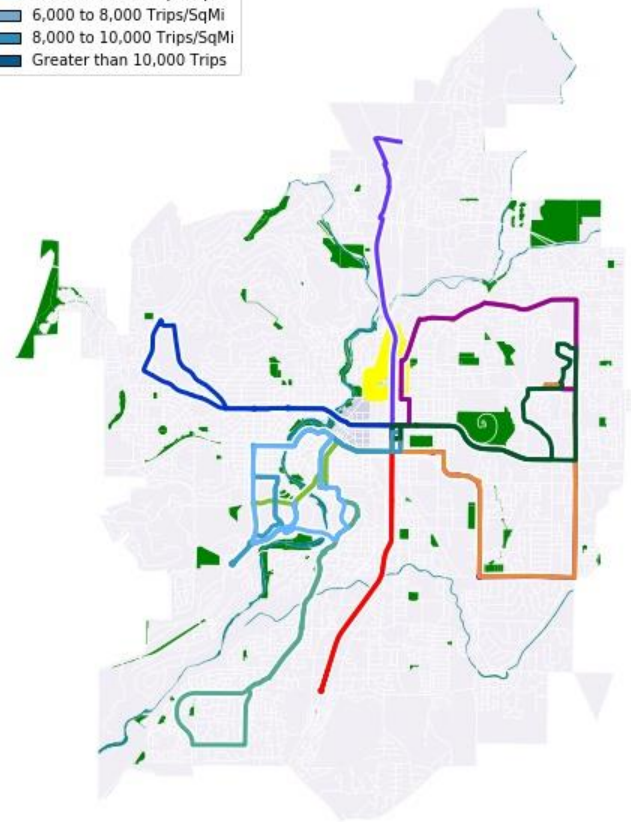
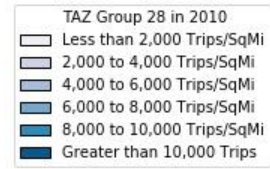
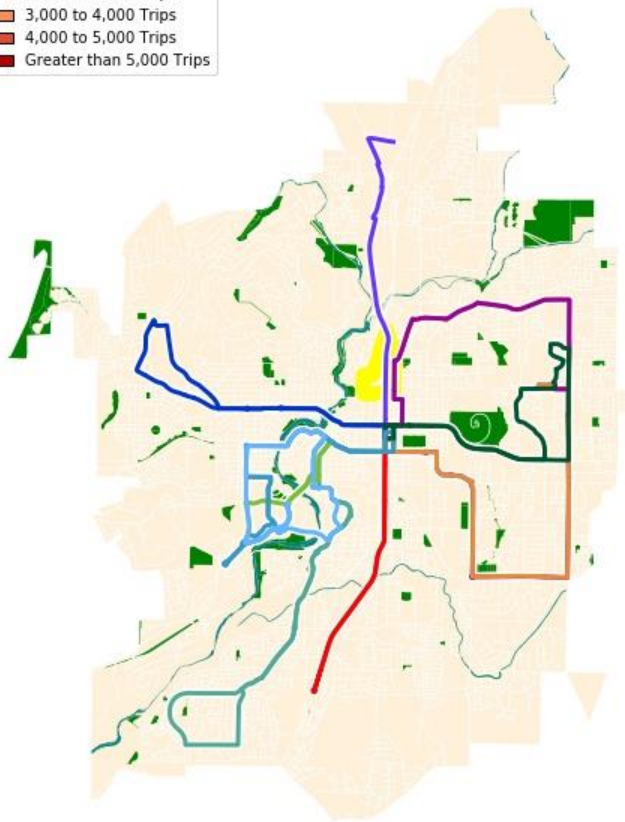


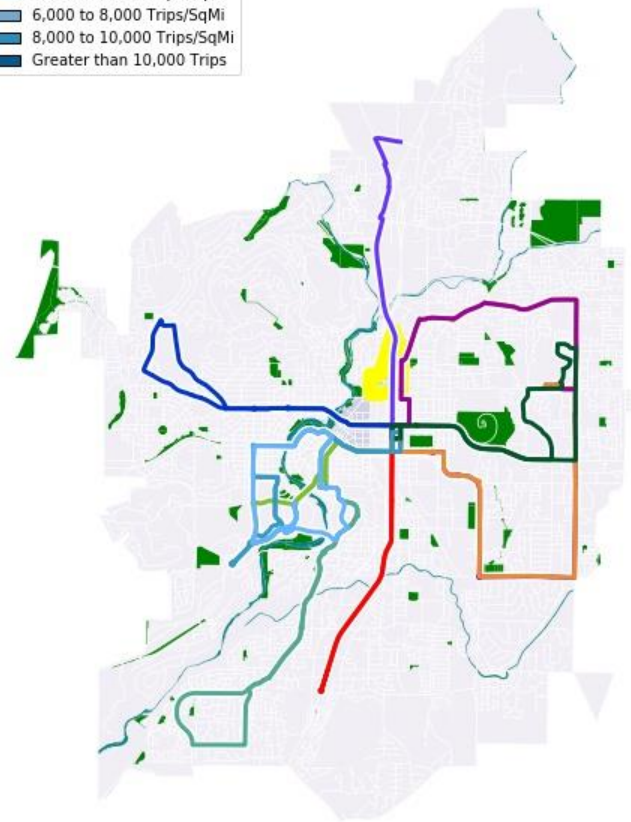
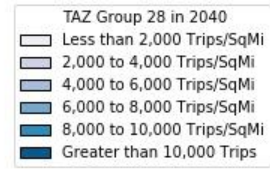
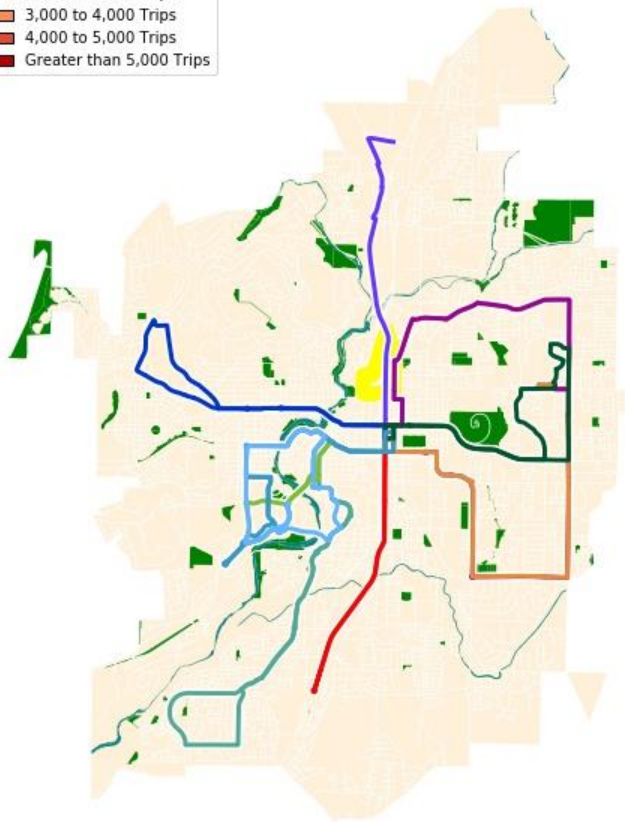


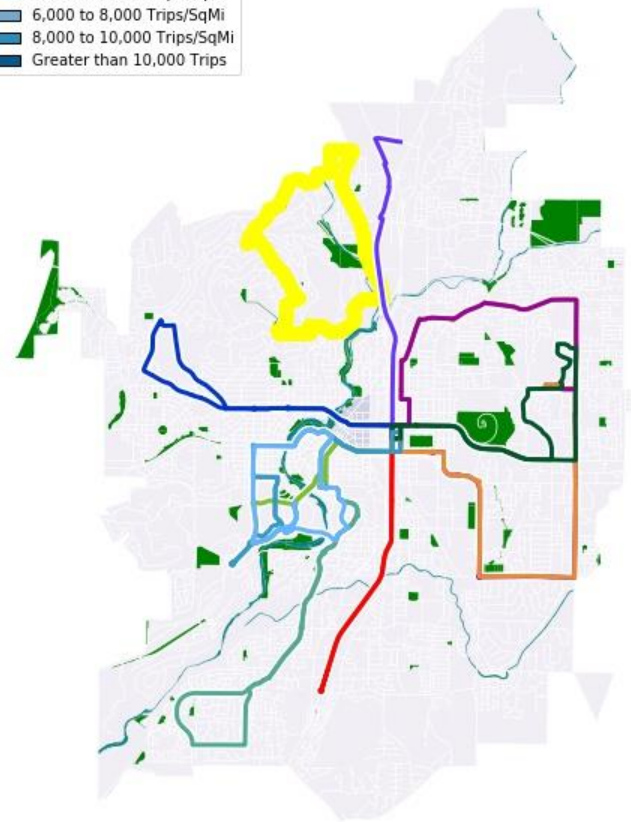
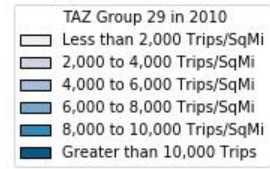
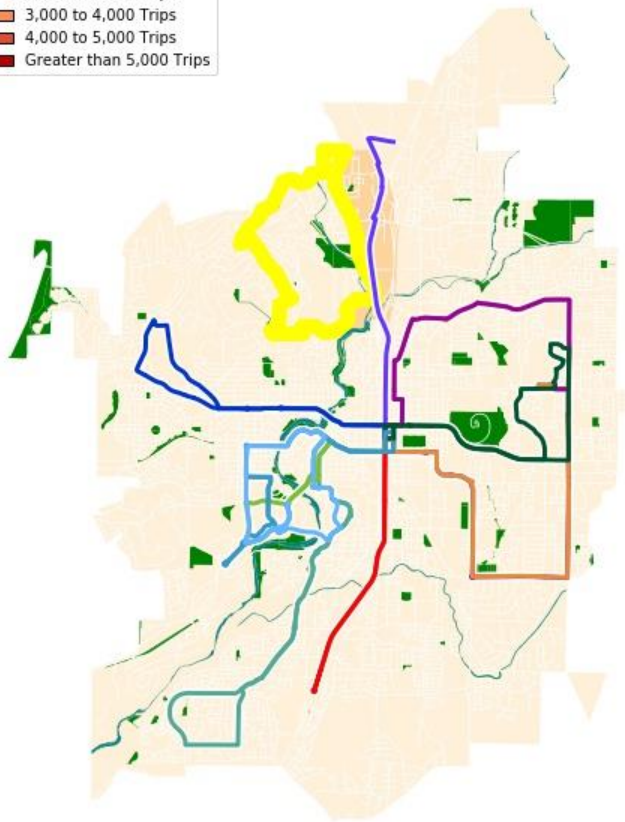


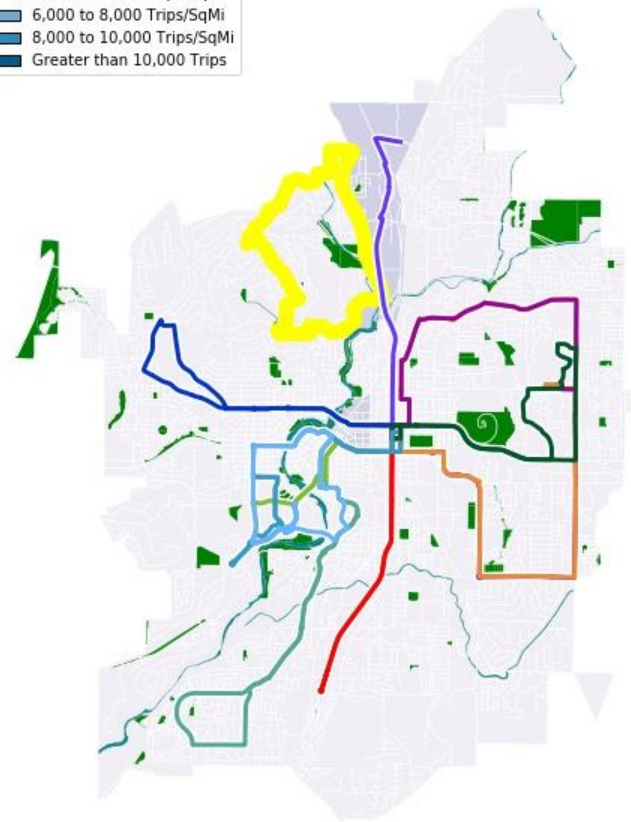
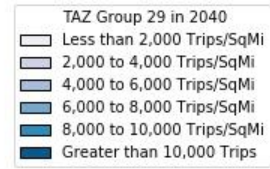
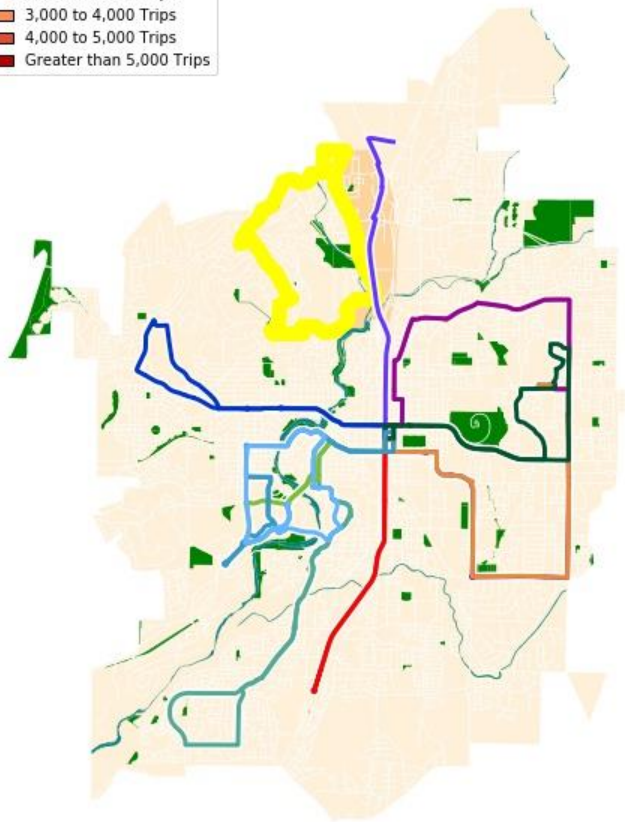


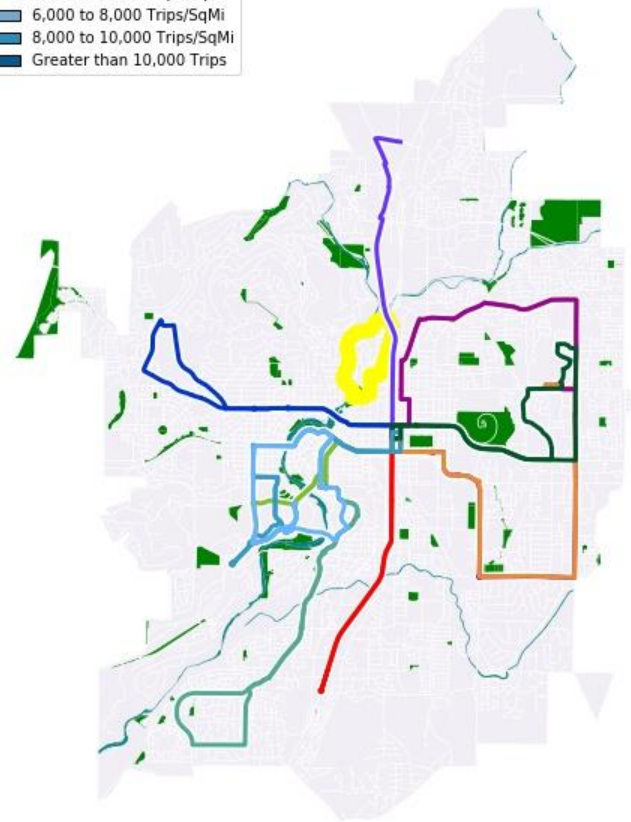
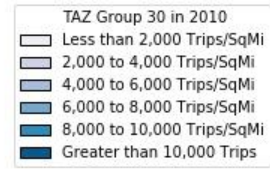
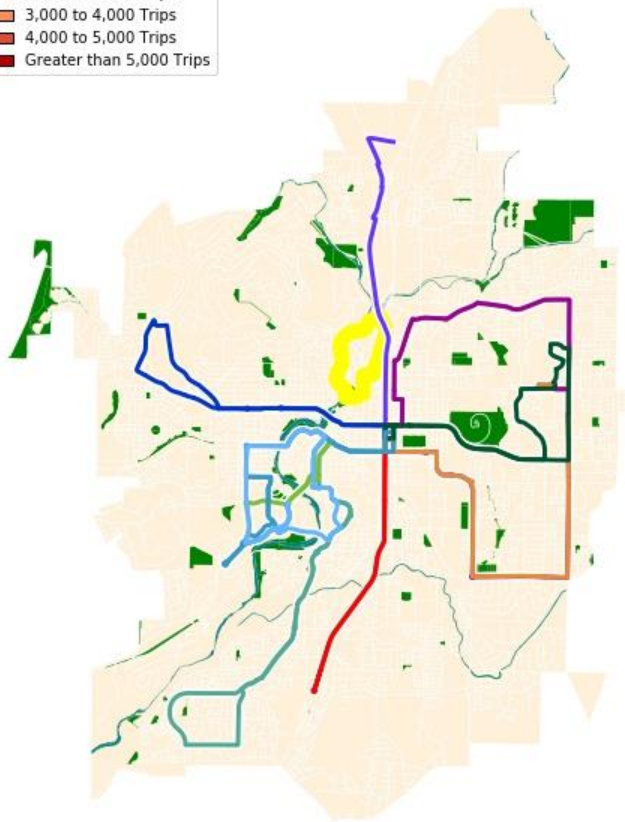


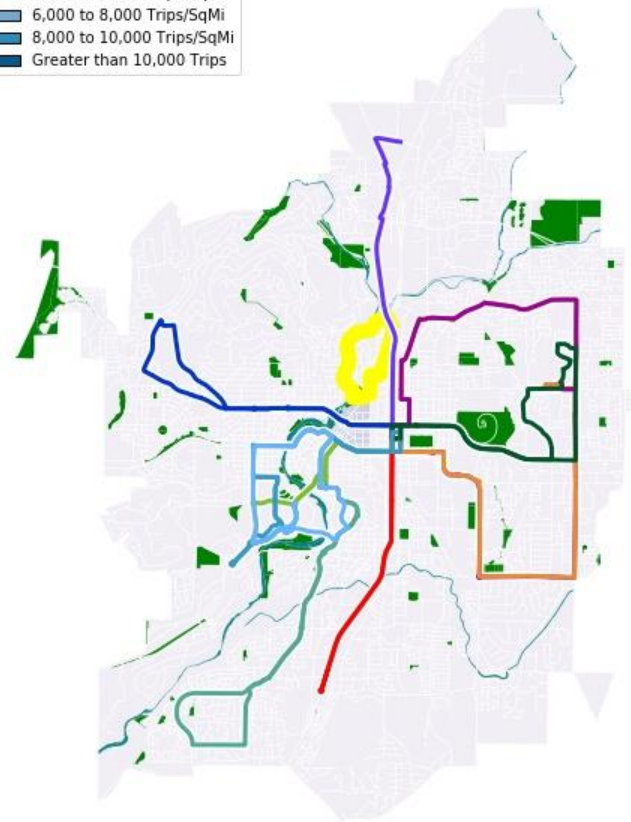
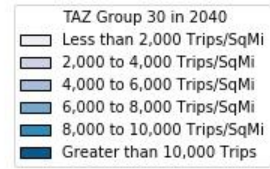
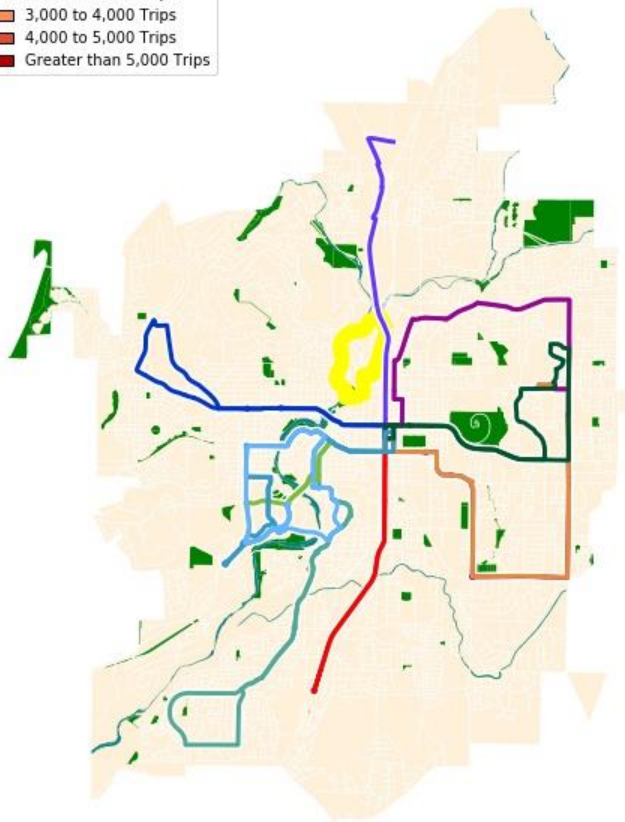


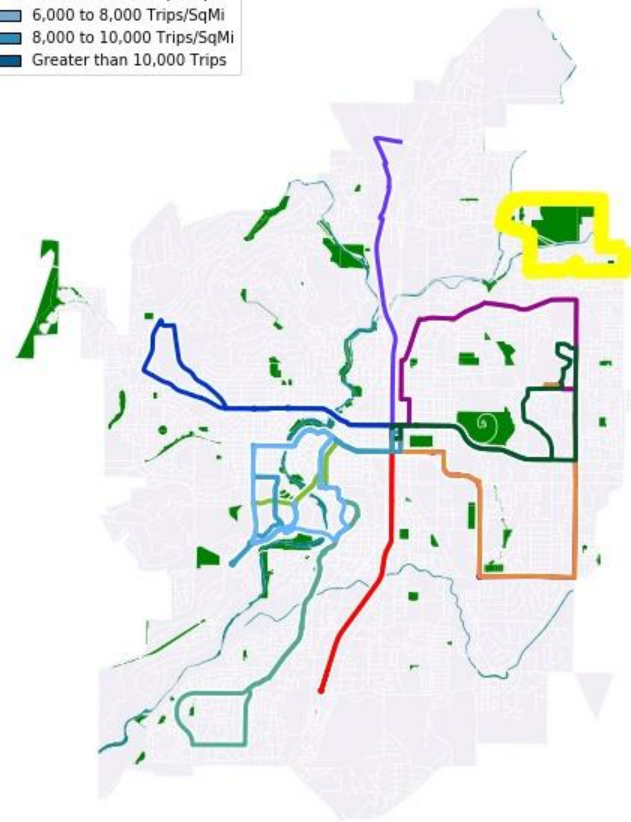
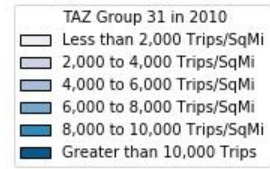
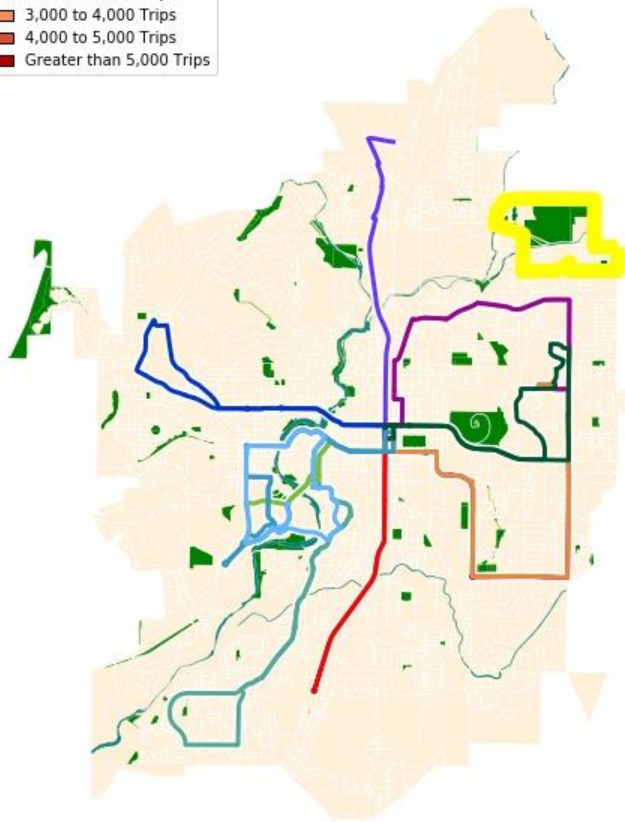


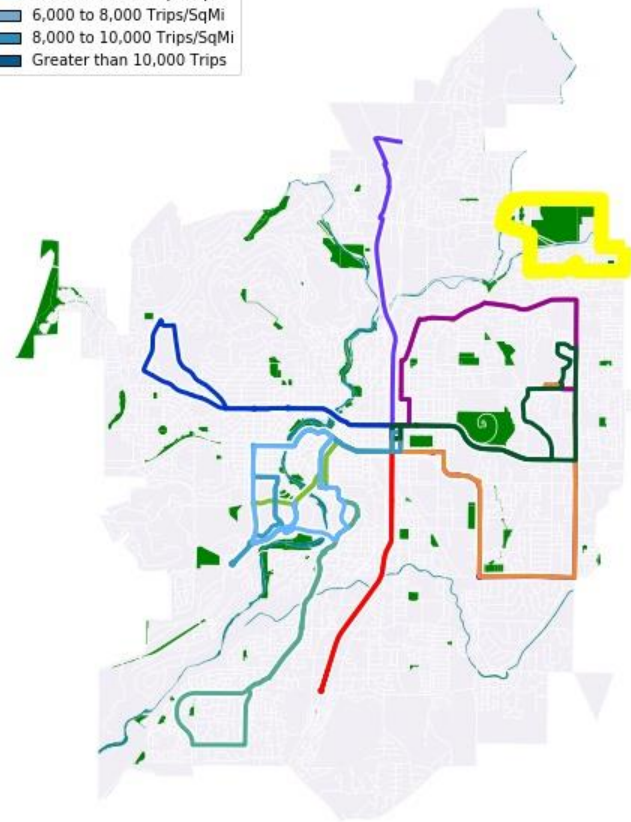
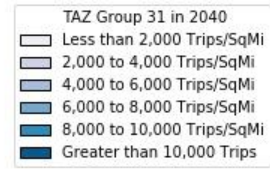
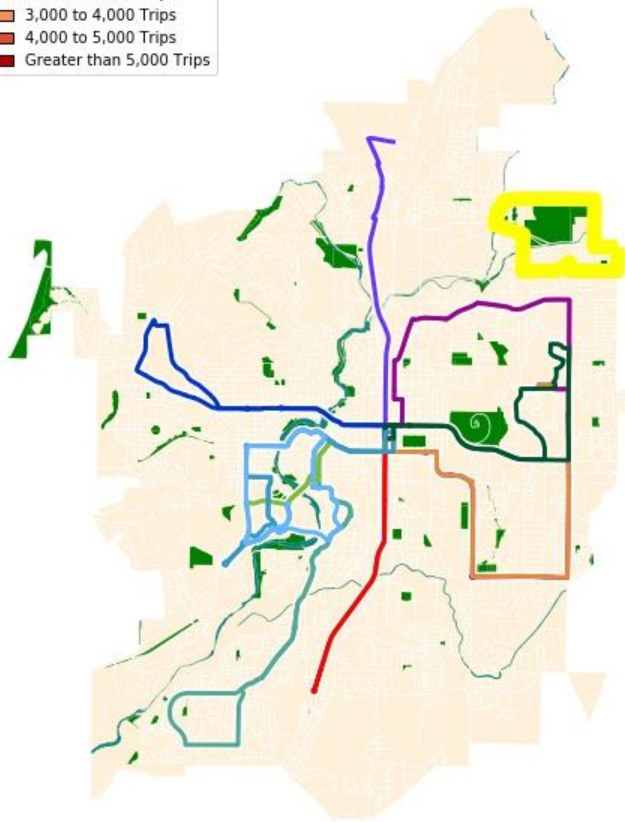


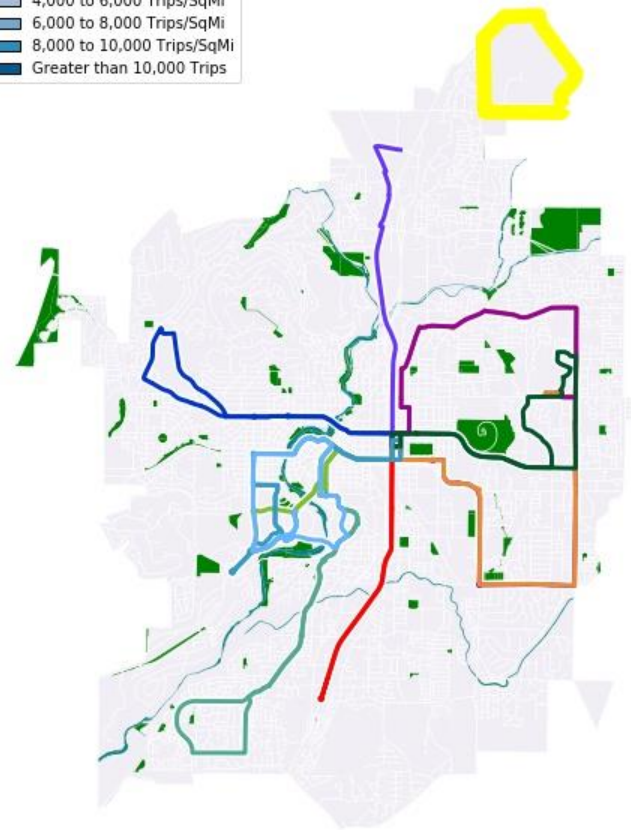
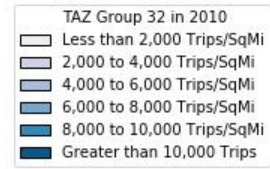
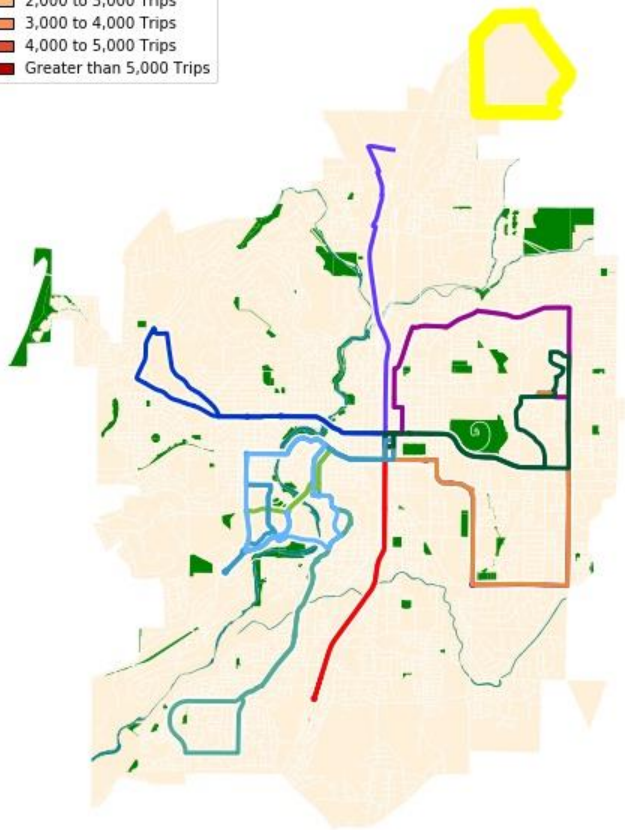


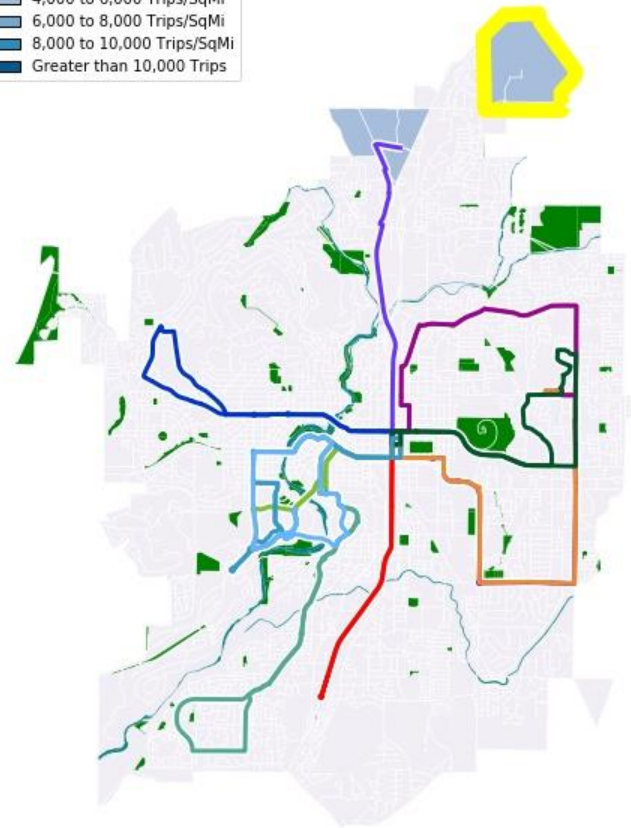
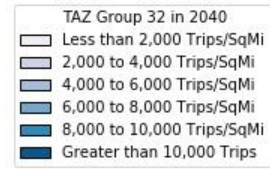
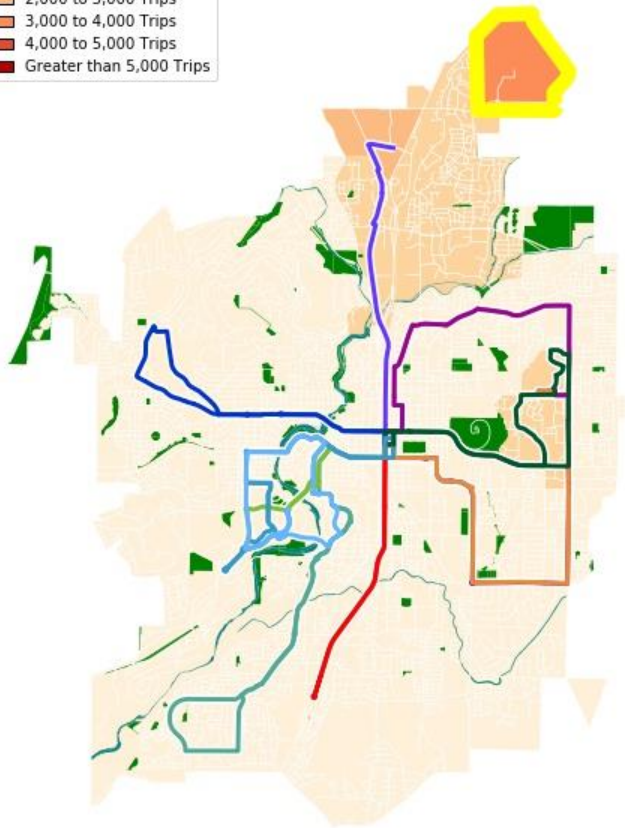
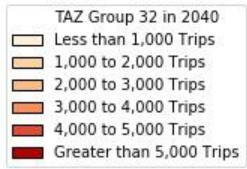












Origin-Destination Table - Vehicle Trips, 2010

Part 1 - Origins 1 - 32 and Destinations 1 -16

Origin	Destination																Origin Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	1,991	767	1,007	699	765	510	561	2,113	894	724	592	1,283	842	505	459	359	22,088
2	767	1,936	503	2,004	491	762	521	230	442	397	1,338	313	227	633	203	187	14,129
3	1,007	503	1,200	463	586	608	585	340	566	393	317	395	383	323	545	239	12,486
4	699	2,004	463	2,238	397	997	997	618	153	357	270	573	232	159	429	184	12,541
5	765	491	586	397	1,336	457	355	597	461	1,032	245	313	677	246	274	195	12,882
6	510	762	608	997	457	883	685	225	426	348	480	295	220	601	337	209	11,524
7	561	521	585	618	355	685	1,690	179	324	250	296	202	184	292	561	341	10,951
8	2,113	230	340	153	597	225	179	1,639	270	401	125	313	454	136	124	319	10,288
9	894	442	566	357	461	426	324	270	966	293	263	421	356	322	250	148	9,345
10	724	397	393	270	1,032	348	250	401	293	561	163	201	345	168	178	110	9,123
11	592	1,338	317	573	245	480	296	125	263	163	1,411	263	121	339	101	250	8,572
12	1,283	313	395	232	313	295	202	313	421	201	263	901	367	269	149	199	8,445
13	842	227	383	159	677	220	184	454	356	345	121	367	816	146	142	285	7,952
14	505	633	323	429	246	601	292	136	322	168	339	269	146	850	124	166	7,323
15	459	203	545	184	274	337	561	124	250	178	101	149	142	124	937	430	7,017
16	359	187	239	467	195	209	341	319	148	110	250	199	285	166	430	285	6,654
17	398	255	607	234	236	519	417	124	273	159	147	161	137	179	256	231	6,493
18	911	578	260	264	200	365	212	147	206	139	319	292	107	242	82	171	6,459
19	351	435	361	383	216	525	759	89	187	154	172	117	92	190	234	193	6,427
20	601	158	249	112	743	173	142	325	171	935	75	127	238	86	86	237	6,892
21	1,200	317	237	162	178	273	157	174	196	117	170	434	108	184	75	195	5,963
22	656	147	209	155	556	150	133	422	182	385	101	141	344	94	94	80	5,972
23	1,217	144	177	104	173	141	103	410	144	125	92	230	129	86	67	226	5,371
24	495	295	208	194	150	283	161	110	213	88	221	198	119	230	74	49	4,528
25	277	170	294	188	165	250	410	65	146	104	71	86	71	87	260	273	4,366
26	334	123	415	82	261	183	216	86	184	133	53	100	106	75	301	227	4,224
27	336	136	299	89	297	193	230	81	150	188	52	91	90	72	188	302	4,167
28	326	160	215	132	288	153	128	169	200	184	87	140	304	98	110	61	4,028
29	301	112	228	86	541	133	117	122	139	252	55	87	146	66	94	107	3,846
30	195	81	188	64	221	83	70	67	121	94	42	65	100	49	64	56	2,248
31	343	41	62	32	140	43	35	245	49	109	23	45	104	25	23	50	2,049
32	74	24	24	20	87	18	19	34	24	118	14	15	29	12	11	5	849
Destination Total	22,088	14,129	12,486	12,541	12,882	11,524	10,951	10,288	9,345	9,123	8,572	8,445	7,952	7,323	7,017	6,654	245,201

Source: Developed by Kittelson and Associates, Inc. using Bend-Redmond model vehicle trip data for 2010

Origin-Destination Table - Vehicle Trips, 2010

Part 2 - Origins 1 - 32 and Destinations 17 - 32

Origin	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Origin Total
1	398	911	351	601	1,200	656	1,217	495	277	334	336	326	301	195	343	74	22,088
2	255	578	435	158	317	147	144	295	170	123	136	160	112	81	41	24	14,129
3	607	260	361	249	237	209	177	208	294	415	299	215	228	188	62	24	12,486
4	234	264	383	112	162	155	104	194	188	82	89	132	86	64	32	20	12,541
5	236	200	216	743	178	556	173	150	165	261	297	288	541	221	140	87	12,882
6	519	365	525	173	273	150	141	283	250	183	193	153	133	83	43	18	11,524
7	417	212	759	142	157	133	103	161	410	216	230	128	117	70	35	19	10,951
8	124	147	89	325	174	422	410	110	65	86	81	169	122	67	245	34	10,288
9	273	206	187	171	196	182	144	213	146	184	150	200	139	121	49	24	9,345
10	159	139	154	935	117	385	125	88	104	133	188	184	252	94	109	118	9,123
11	147	319	172	75	170	101	92	221	71	53	52	87	55	42	23	14	8,572
12	161	292	117	127	434	141	230	198	86	100	91	140	87	65	45	15	8,445
13	137	107	92	238	108	344	129	119	71	106	90	304	146	100	104	29	7,952
14	179	242	190	86	184	94	86	230	87	75	72	98	66	49	25	12	7,323
15	256	82	234	86	75	94	67	74	260	301	188	110	94	64	23	11	7,017
16	231	171	193	237	195	80	226	49	273	227	302	61	107	56	50	5	6,654
17	728	114	216	92	99	85	68	100	144	134	114	90	82	60	24	10	6,493
18	114	616	119	63	281	90	138	221	51	43	41	72	43	31	26	13	6,459
19	216	119	594	68	86	73	56	90	236	102	126	73	65	35	18	9	6,427
20	92	63	68	964	60	406	85	62	46	59	69	107	136	51	91	75	6,892
21	99	281	86	60	473	83	208	189	43	42	40	68	42	29	28	10	5,963
22	85	90	73	406	83	443	105	86	57	76	85	112	134	60	137	90	5,972
23	68	138	56	85	208	105	733	77	40	44	44	66	44	31	51	12	5,371
24	100	221	90	62	189	86	77	294	49	45	43	66	42	36	20	17	4,528
25	144	51	236	46	43	57	40	49	335	107	173	59	60	29	13	7	4,366
26	134	43	102	59	42	76	44	45	107	317	120	93	89	48	16	8	4,224
27	114	41	126	69	40	85	44	43	173	120	279	74	108	32	18	9	4,167
28	90	72	73	107	68	112	66	66	59	93	74	175	83	88	31	16	4,028
29	82	43	65	136	42	134	44	42	60	89	108	83	239	50	28	16	3,846
30	60	31	35	51	29	60	31	36	29	48	32	88	50	89	13	6	2,248
31	24	26	18	91	28	137	51	20	13	16	18	31	28	13	159	10	2,049
32	10	13	9	75	10	90	12	17	7	8	9	16	16	6	10	13	849
Destination Total	6,493	6,459	6,427	6,892	5,963	5,972	5,371	4,528	4,366	4,224	4,167	4,028	3,846	2,248	2,049	849	245,201

Source: Developed by Kittelson and Associates, Inc. using Bend-Redmond model vehicle trip data for 2010

Origin-Destination Table - Vehicle Trips, 2040

Part 1 - Origins 1 - 32 and Destinations 1 - 16

Origin	Destination																Origin Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	2,260	643	868	632	687	572	956	2,398	957	807	673	1,224	873	442	390	368	24,162
2	643	2,442	563	2,360	434	1,021	1,084	249	609	440	1,999	327	268	753	213	203	17,884
3	868	563	1,416	516	560	834	1,091	328	960	468	410	415	445	362	575	277	15,079
4	632	2,360	516	3,364	388	1,295	1,570	191	498	357	1,101	283	208	531	218	408	17,646
5	687	434	560	388	1,707	443	566	555	557	1,640	288	289	763	229	254	220	15,606
6	572	1,021	834	1,295	443	2,303	1,760	253	663	415	783	357	282	812	399	264	17,571
7	956	1,084	1,091	1,570	566	1,760	7,464	460	749	487	944	422	488	629	1,162	728	29,520
8	2,398	249	328	191	555	253	460	1,746	346	505	190	318	543	146	138	262	12,480
9	957	609	960	498	557	663	749	346	2,004	444	444	578	529	468	341	228	14,616
10	807	440	468	357	1,640	415	487	505	444	3,060	256	228	506	197	212	157	16,605
11	673	1,999	410	1,101	288	783	944	190	444	256	2,579	289	187	554	144	313	14,926
12	1,224	327	415	283	289	357	422	318	578	228	289	814	398	262	158	163	9,385
13	873	268	445	208	763	282	488	543	529	506	187	398	1,059	174	173	272	10,609
14	442	753	362	531	229	812	629	146	468	197	554	262	174	915	132	143	9,113
15	390	213	575	218	254	399	1,162	138	341	212	144	158	173	132	1,109	508	8,917
16	368	203	277	408	220	264	728	262	228	157	313	163	272	143	508	582	8,259
17	354	312	760	310	229	813	904	132	426	195	223	184	166	224	275	203	8,410
18	1,017	956	336	751	256	570	681	258	352	234	1,292	321	190	364	131	212	13,170
19	331	528	374	548	216	689	2,285	113	263	206	317	131	122	234	311	250	10,667
20	808	253	343	222	1,068	283	491	483	319	1,777	171	182	425	135	143	262	13,101
21	1,189	352	266	231	183	352	449	228	282	157	287	503	142	221	92	199	7,890
22	1,080	246	343	254	938	273	340	695	384	860	218	229	683	159	158	116	12,501
23	1,322	158	190	128	165	167	298	437	195	157	138	236	150	96	75	183	6,605
24	487	340	235	246	150	392	297	126	289	114	354	233	144	276	82	56	5,923
25	326	236	381	235	209	388	1,198	104	253	185	150	119	119	122	468	574	8,594
26	308	137	446	107	263	236	484	97	262	176	81	111	132	86	361	256	5,392
27	312	153	307	121	315	250	549	94	208	258	86	99	112	84	244	443	5,849
28	248	138	217	116	236	144	173	139	299	183	92	125	311	88	98	63	4,085
29	311	134	249	114	790	174	277	147	209	469	86	111	207	80	117	144	5,801
30	259	120	291	106	305	151	211	104	239	185	81	99	172	75	106	85	3,892
31	393	51	67	43	152	53	97	344	70	158	39	53	105	30	29	53	2,893
32	668	162	184	194	551	180	227	353	191	1,113	157	127	261	92	100	63	9,408
Destination Total	24,162	17,884	15,079	17,646	15,606	17,571	29,520	12,480	14,616	16,605	14,926	9,385	10,609	9,113	8,917	8,259	366,559

Source: Developed by Kittelson and Associates, Inc. using Bend-Redmond model vehicle trip data for 2040

Origin-Destination Table - Vehicle Trips, 2040

Part 2 - Origins 1 - 32 and Destinations 17 - 32

Origin	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Origin Total
1	354	1,017	331	808	1,189	1,080	1,322	487	326	308	312	248	311	259	393	668	24,162
2	312	956	528	253	352	246	158	340	236	137	153	138	134	120	51	162	17,884
3	760	336	374	343	266	343	190	235	381	446	307	217	249	291	67	184	15,079
4	310	751	548	222	231	254	128	246	235	107	121	116	114	106	43	194	17,646
5	229	256	216	1,068	183	938	165	150	209	263	315	236	790	305	152	551	15,606
6	813	570	689	283	352	273	167	392	388	236	250	144	174	151	53	180	17,571
7	904	681	2,285	491	449	340	298	297	1,198	484	549	173	277	211	97	227	29,520
8	132	258	113	483	228	695	437	126	104	97	94	139	147	104	344	353	12,480
9	426	352	263	319	282	384	195	289	253	262	208	299	209	239	70	191	14,616
10	195	234	206	1,777	157	860	157	114	185	176	258	183	469	185	158	1,113	16,605
11	223	1,292	317	171	287	218	138	354	150	81	86	92	86	81	39	157	14,926
12	184	321	131	182	503	229	236	233	119	111	99	125	111	99	53	127	9,385
13	166	190	122	425	142	683	150	144	119	132	112	311	207	172	105	261	10,609
14	224	364	234	135	221	159	96	276	122	86	84	88	80	75	30	92	9,113
15	275	131	311	143	92	158	75	82	468	361	244	98	117	106	29	100	8,917
16	203	212	250	262	199	116	183	56	574	256	443	63	144	85	53	63	8,259
17	752	179	269	140	125	142	77	123	213	153	132	86	96	98	28	87	8,410
18	179	2,624	258	170	483	212	218	372	129	79	87	83	82	69	51	154	13,170
19	269	258	1,524	133	127	131	70	118	493	125	172	64	82	62	25	95	10,667
20	140	170	133	1,947	118	979	140	97	114	106	138	134	260	121	164	976	13,101
21	125	483	127	118	678	157	298	258	77	53	54	64	57	52	42	115	7,890
22	142	212	131	979	157	1,534	174	169	134	132	160	169	277	142	235	779	12,501
23	77	218	70	140	298	174	924	94	61	50	51	57	53	47	66	128	6,605
24	123	372	118	97	258	169	94	403	79	53	53	61	51	51	26	95	5,923
25	213	129	493	114	77	134	61	79	1,267	200	409	67	102	65	23	93	8,594
26	153	79	125	106	53	132	50	53	200	356	143	87	127	84	21	81	5,392
27	132	87	172	138	54	160	51	53	409	143	411	64	156	57	24	103	5,849
28	86	83	64	134	64	169	57	61	67	87	64	177	86	107	29	78	4,085
29	96	82	82	260	57	277	53	51	102	127	156	86	466	98	40	149	5,801
30	98	69	62	121	52	142	47	51	65	84	57	107	98	164	23	66	3,892
31	28	51	25	164	42	235	66	26	23	21	24	29	40	23	228	125	2,893
32	87	154	95	976	115	779	128	95	93	81	103	78	149	66	125	1,663	9,408
Destination Total	8,410	13,170	10,667	13,101	7,890	12,501	6,605	5,923	8,594	5,392	5,849	4,085	5,801	3,892	2,893	9,408	366,559

Source: Developed by Kittelson and Associates, Inc. using Bend-Redmond model vehicle trip data for 2010 and 2040

Origin-Destination Change in Trips between 2010 and 2040

Greater than Zero is an increase in Trips

Part 1 - Origins 1 - 32 and Destinations 1 - 16

Origin	Destination																Origin Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	269	(124)	(139)	(67)	(78)	62	395	285	63	82	80	(59)	31	(63)	(69)	9	2,074
2	(124)	505	60	357	(57)	259	563	19	167	42	661	13	41	119	10	17	3,754
3	(139)	60	216	53	(26)	227	506	(11)	394	75	93	19	62	39	31	38	2,593
4	(67)	357	53	1,126	(9)	298	952	38	141	88	528	52	48	102	34	(59)	5,105
5	(78)	(57)	(26)	(9)	371	(15)	210	(42)	96	607	42	(24)	86	(17)	(20)	25	2,724
6	62	259	227	298	(15)	1,421	1,075	28	237	66	303	63	62	211	63	55	6,047
7	395	563	506	952	210	1,075	5,774	280	425	238	648	220	305	337	602	387	18,569
8	285	19	(11)	38	(42)	28	280	107	75	104	65	4	89	10	14	(58)	2,191
9	63	167	394	141	96	237	425	75	1,038	151	181	157	173	146	91	79	5,271
10	82	42	75	88	607	66	238	104	151	2,499	92	27	160	28	34	47	7,482
11	80	661	93	528	42	303	648	65	181	92	1,167	26	66	214	43	64	6,354
12	(59)	13	19	52	(24)	63	220	4	157	27	26	(87)	30	(7)	9	(37)	940
13	31	41	62	48	86	62	305	89	173	160	66	30	243	28	31	(13)	2,657
14	(63)	119	39	102	(17)	211	337	10	146	28	214	(7)	28	64	9	(23)	1,790
15	(69)	10	31	34	(20)	63	602	14	91	34	43	9	31	9	173	78	1,901
16	9	17	38	(59)	25	55	387	(58)	79	47	64	(37)	(13)	(23)	78	296	1,605
17	(44)	57	154	76	(8)	294	487	8	153	36	76	23	29	45	19	(27)	1,917
18	106	378	76	487	56	205	468	110	146	95	973	29	83	122	48	42	6,712
19	(20)	93	13	165	0	163	1,526	24	76	52	145	14	30	44	77	56	4,241
20	208	95	94	110	325	110	349	158	148	842	96	55	186	49	56	25	6,209
21	(12)	35	29	69	5	79	292	54	86	40	117	69	34	36	16	4	1,927
22	423	99	134	99	381	124	208	273	202	475	117	89	339	65	63	36	6,529
23	104	14	13	24	(8)	27	195	27	52	32	46	6	21	10	8	(44)	1,233
24	(8)	45	27	52	(1)	108	136	16	76	26	133	35	25	47	8	7	1,396
25	48	66	87	47	45	138	788	39	107	81	79	33	48	36	208	302	4,227
26	(26)	14	31	25	1	53	268	11	78	42	28	11	25	11	61	29	1,168
27	(23)	17	8	32	18	57	319	14	58	71	34	7	22	12	56	141	1,682
28	(78)	(22)	2	(16)	(51)	(8)	45	(30)	99	(2)	6	(15)	7	(11)	(11)	2	57
29	10	22	21	27	249	41	161	25	70	217	31	25	61	14	23	36	1,955
30	64	39	103	42	84	69	141	37	118	91	39	34	72	26	43	29	1,645
31	50	10	5	12	12	10	62	99	22	50	17	8	1	6	6	4	844
32	594	138	160	174	465	162	208	319	167	995	142	112	233	81	89	58	8,559
Destination Total	2,074	3,754	2,593	5,105	2,724	6,047	18,569	2,191	5,271	7,482	6,354	940	2,657	1,790	1,901	1,605	121,359

Source: Developed by Kittelson and Associates, Inc. using Bend-Redmond model vehicle trip data for 2010 and 2040

Origin-Destination Change in Trips between 2010 and 2040

Greater than Zero is an increase in Trips

Part 2 - Origins 1 - 32 and Destinations 17 - 32

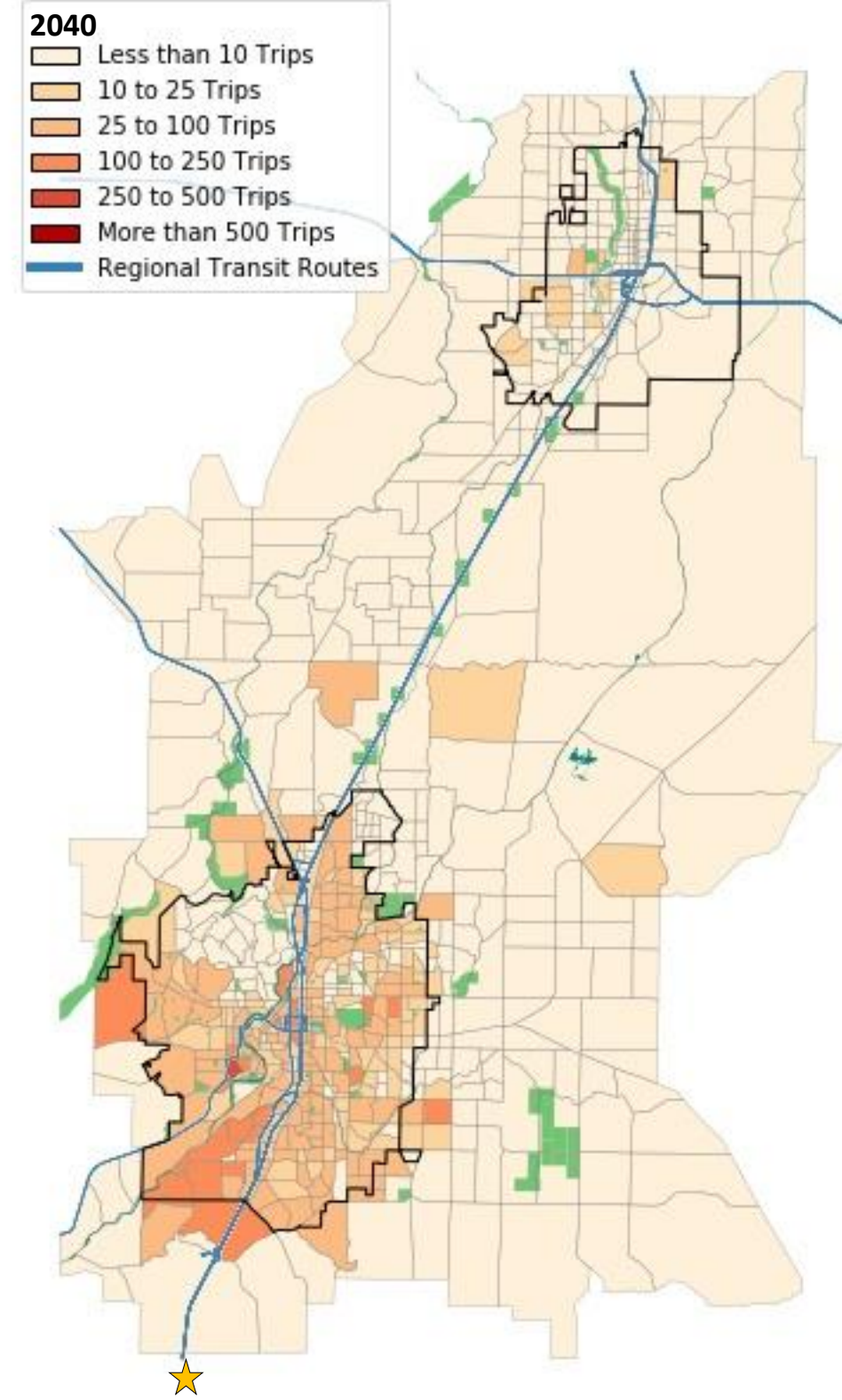
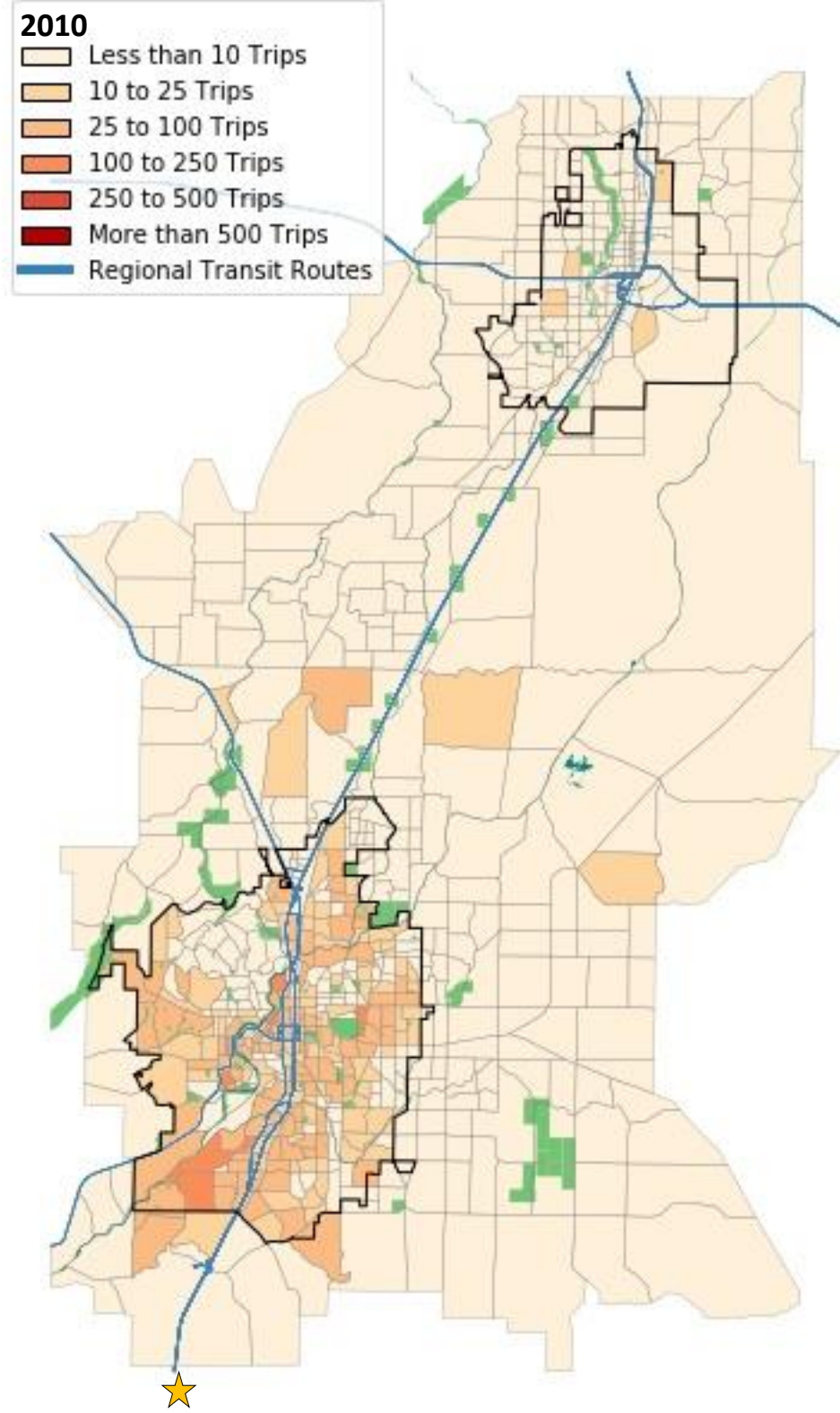
Origin	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Origin Total
1	(44)	106	(20)	208	(12)	423	104	(8)	48	(26)	(23)	(78)	10	64	50	594	2,074
2	57	378	93	95	35	99	14	45	66	14	17	(22)	22	39	10	138	3,754
3	154	76	13	94	29	134	13	27	87	31	8	2	21	103	5	160	2,593
4	76	487	165	110	69	99	24	52	47	25	32	(16)	27	42	12	174	5,105
5	(8)	56	0	325	5	381	(8)	(1)	45	1	18	(51)	249	84	12	465	2,724
6	294	205	163	110	79	124	27	108	138	53	57	(8)	41	69	10	162	6,047
7	487	468	1,526	349	292	208	195	136	788	268	319	45	161	141	62	208	18,569
8	8	110	24	158	54	273	27	16	39	11	14	(30)	25	37	99	319	2,191
9	153	146	76	148	86	202	52	76	107	78	58	99	70	118	22	167	5,271
10	36	95	52	842	40	475	32	26	81	42	71	(2)	217	91	50	995	7,482
11	76	973	145	96	117	117	46	133	79	28	34	6	31	39	17	142	6,354
12	23	29	14	55	69	89	6	35	33	11	7	(15)	25	34	8	112	940
13	29	83	30	186	34	339	21	25	48	25	22	7	61	72	1	233	2,657
14	45	122	44	49	36	65	10	47	36	11	12	(11)	14	26	6	81	1,790
15	19	48	77	56	16	63	8	8	208	61	56	(11)	23	43	6	89	1,901
16	(27)	42	56	25	4	36	(44)	7	302	29	141	2	36	29	4	58	1,605
17	25	65	53	48	26	57	8	23	70	19	17	(4)	14	38	4	76	1,917
18	65	2,008	139	107	202	122	80	151	78	35	46	11	39	38	25	142	6,712
19	53	139	930	65	41	58	14	28	256	23	47	(9)	17	26	7	87	4,241
20	48	107	65	984	58	573	55	35	68	47	70	27	124	70	73	900	6,209
21	26	202	41	58	205	74	90	69	34	11	14	(4)	15	22	14	105	1,927
22	57	122	58	573	74	1,091	68	82	77	56	75	57	143	82	98	688	6,529
23	8	80	14	55	90	68	191	17	21	6	7	(8)	9	17	15	115	1,233
24	23	151	28	35	69	82	17	109	30	8	9	(5)	9	14	6	77	1,396
25	70	78	256	68	34	77	21	30	932	94	236	8	42	35	10	86	4,227
26	19	35	23	47	11	56	6	8	94	39	23	(6)	38	37	5	73	1,168
27	17	46	47	70	14	75	7	9	236	23	131	(10)	49	25	6	93	1,682
28	(4)	11	(9)	27	(4)	57	(8)	(5)	8	(6)	(10)	1	3	18	(1)	62	57
29	14	39	17	124	15	143	9	9	42	38	49	3	227	48	12	133	1,955
30	38	38	26	70	22	82	17	14	35	37	25	18	48	75	10	60	1,645
31	4	25	7	73	14	98	15	6	10	5	6	(1)	12	10	69	115	844
32	76	142	87	900	105	688	115	77	86	73	93	62	133	60	115	1,650	8,559
Destination Total	1,917	6,712	4,241	6,209	1,927	6,529	1,233	1,396	4,227	1,168	1,682	57	1,955	1,645	844	8,559	121,359

Source: Developed by Kittelson and Associates, Inc. using Bend-Redmond model vehicle trip data for 2010 and 2040

Appendix D Origin-Destination of External
Trips to/from Bend-Redmond
Model Area

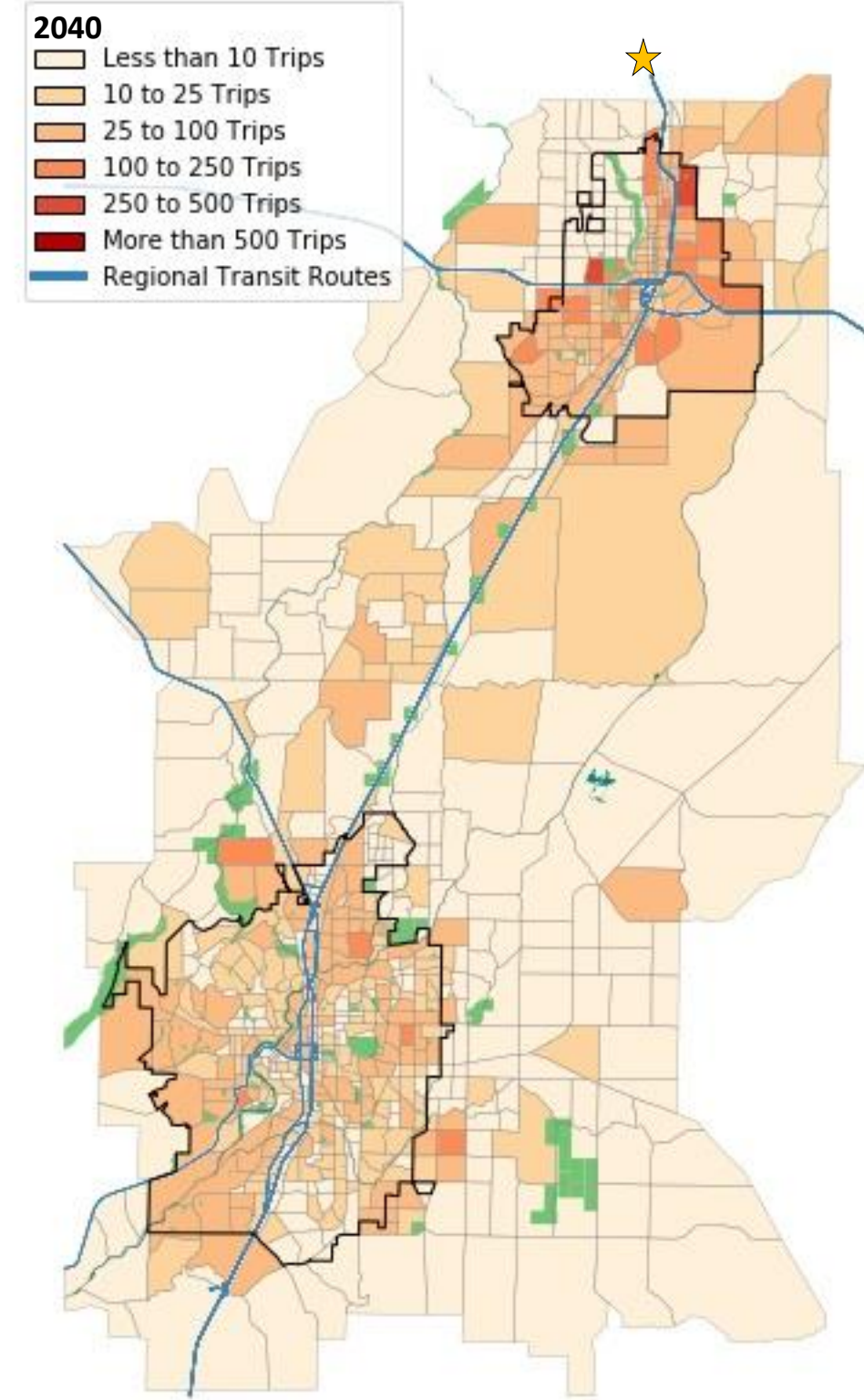
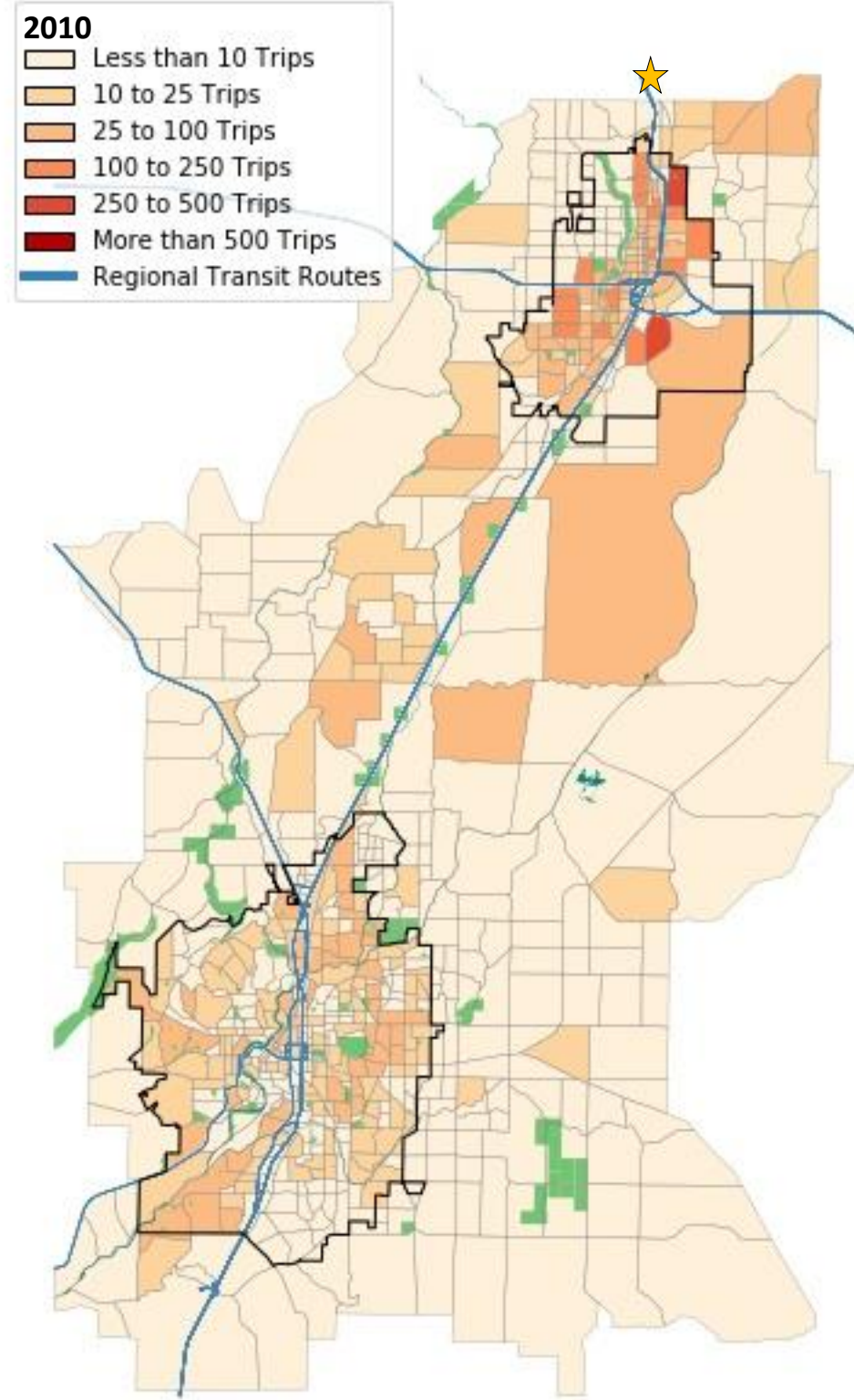
Trips to and from Direction of LaPine / Sun River

★ Star indicates where model assigned external trips



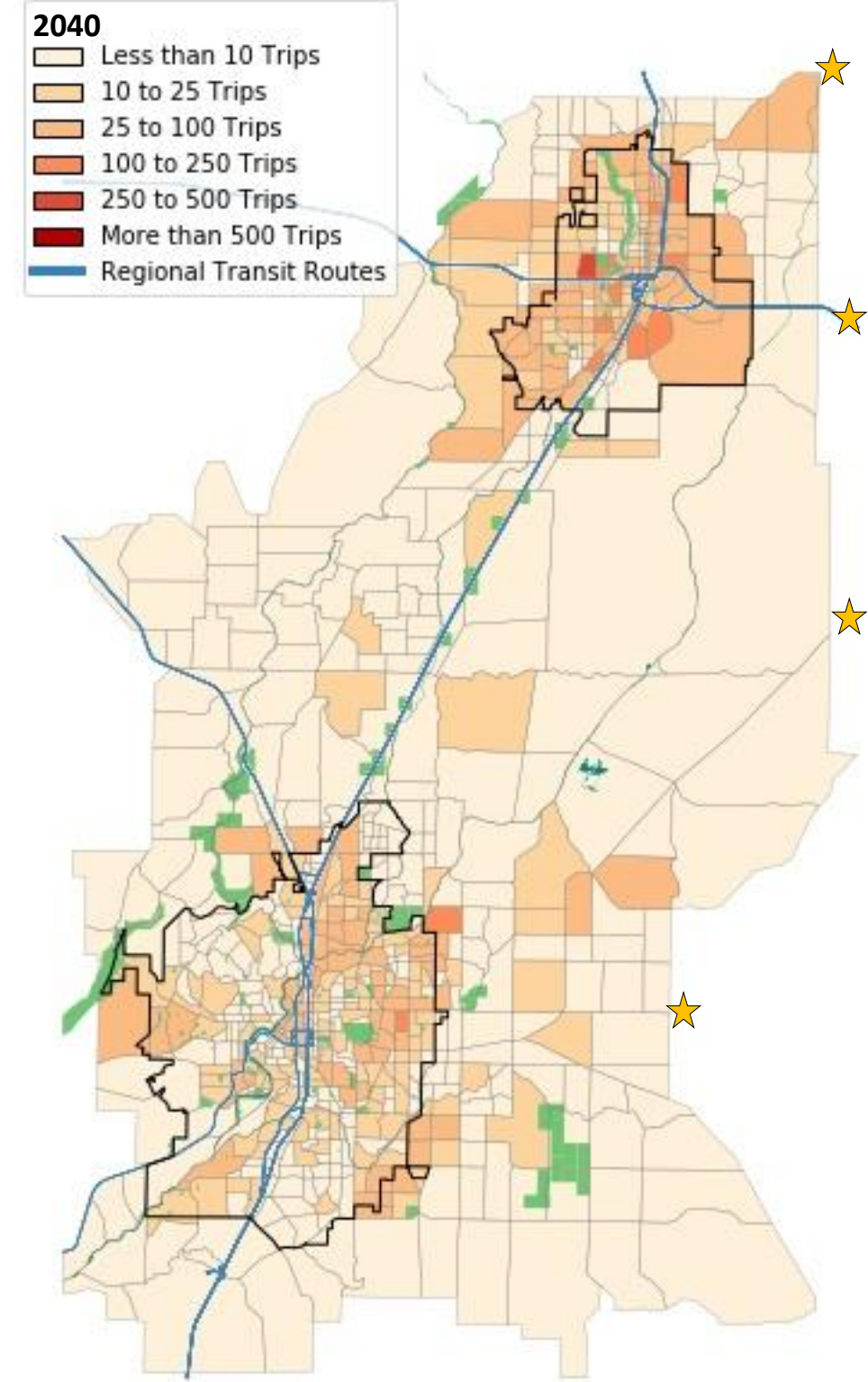
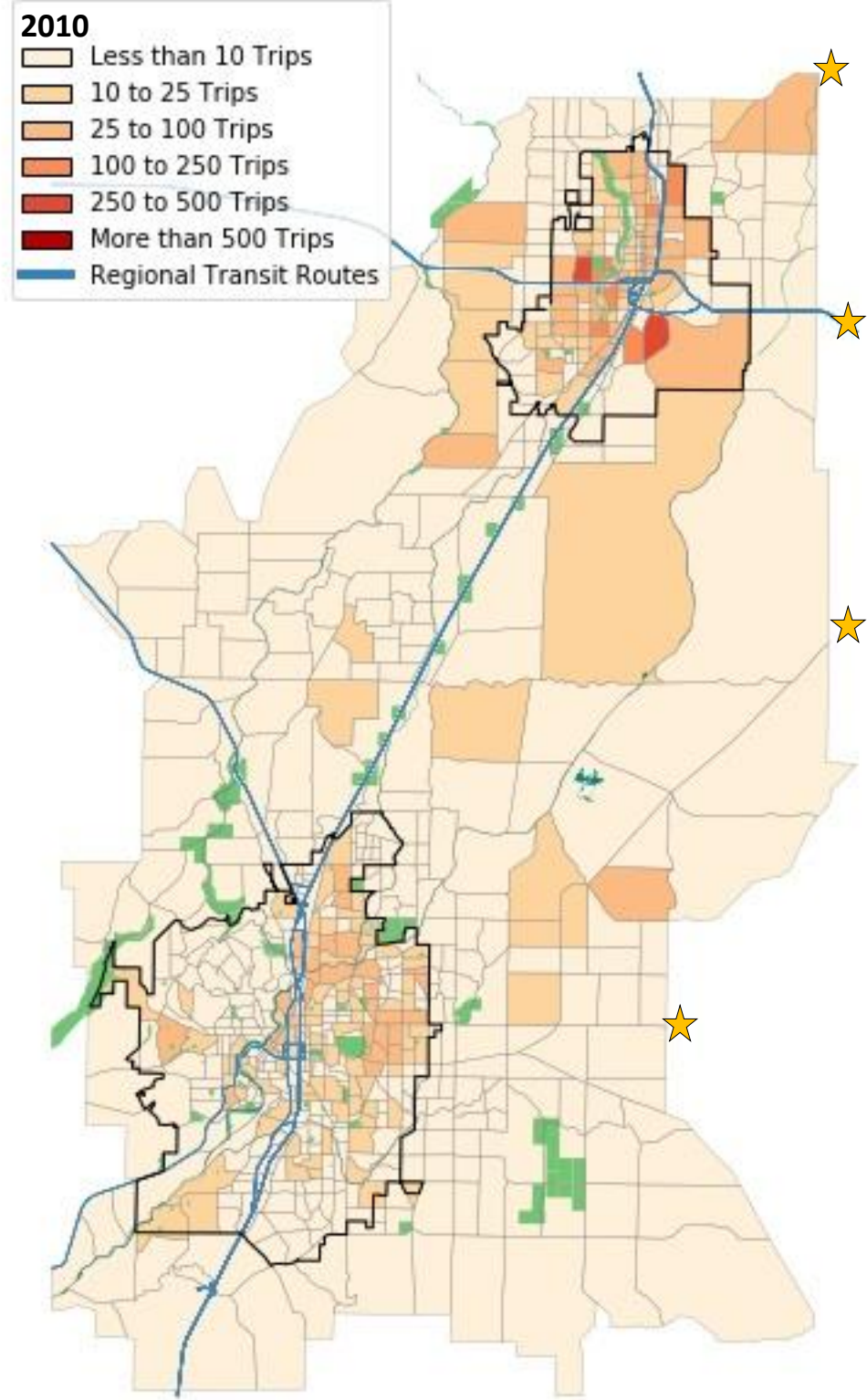
Trips to and from Direction of Warm Springs / Madras

★ Star indicates where model assigned external trips



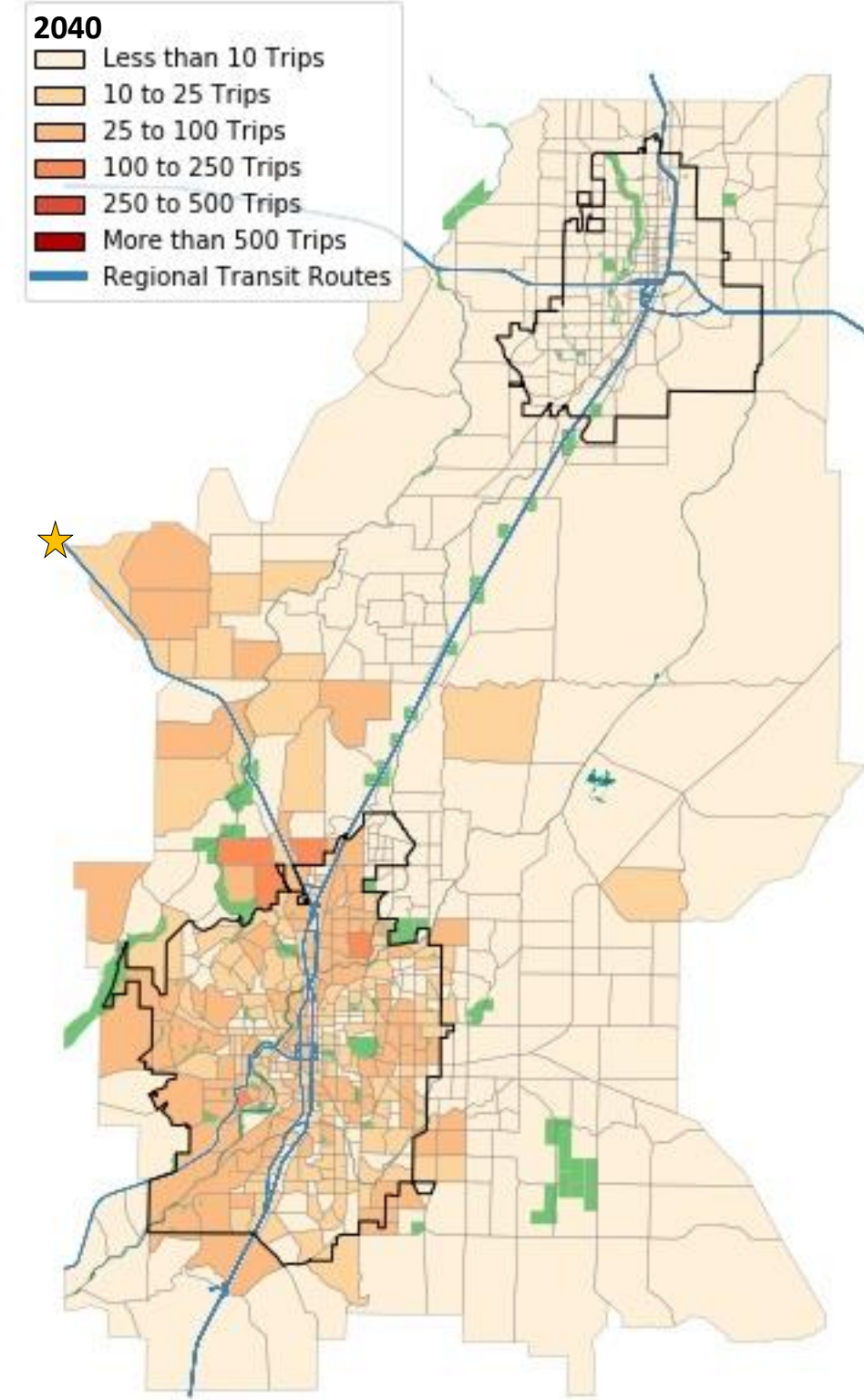
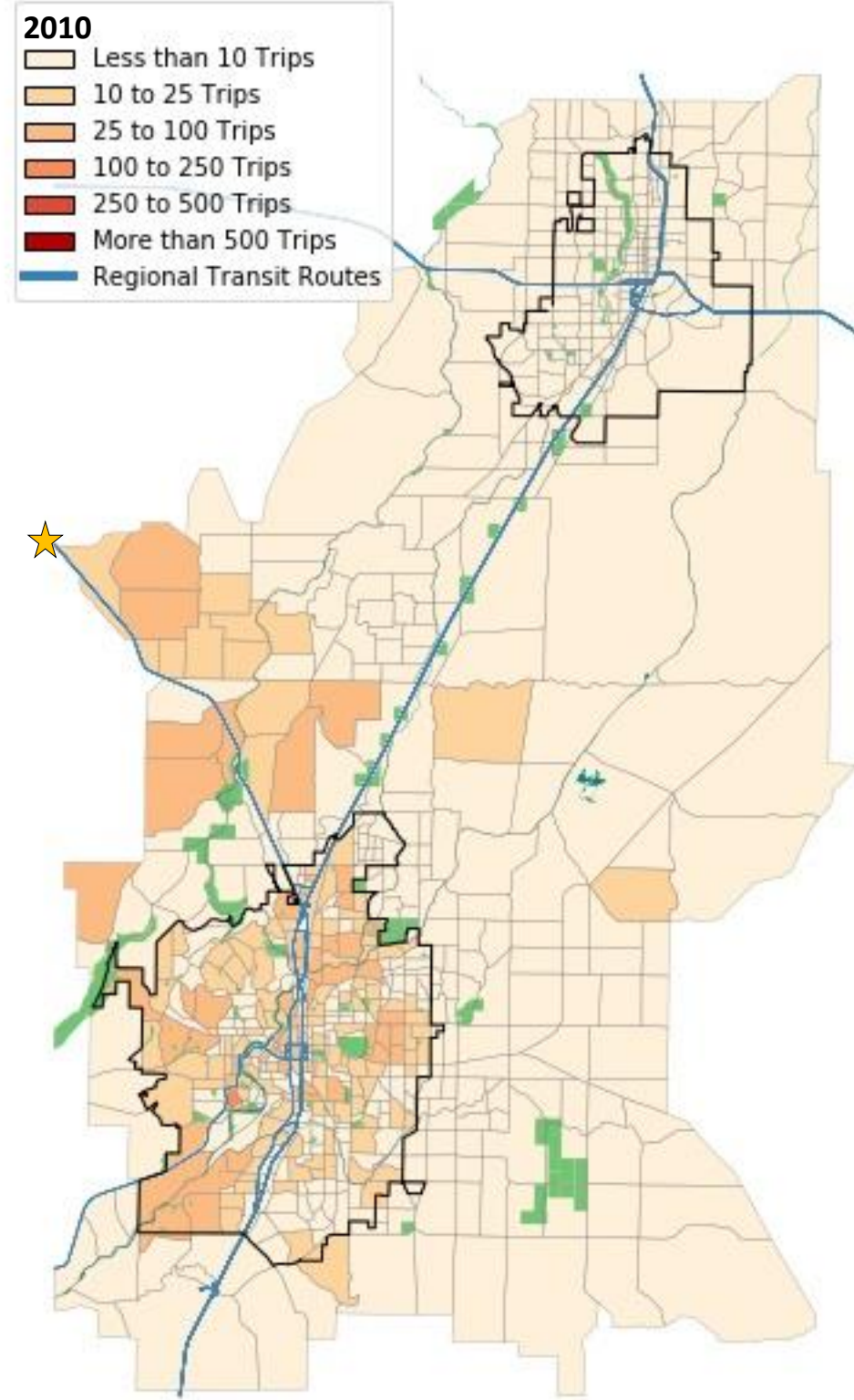
Trips to and from Direction of Prineville

★ Star indicates where model assigned external trips



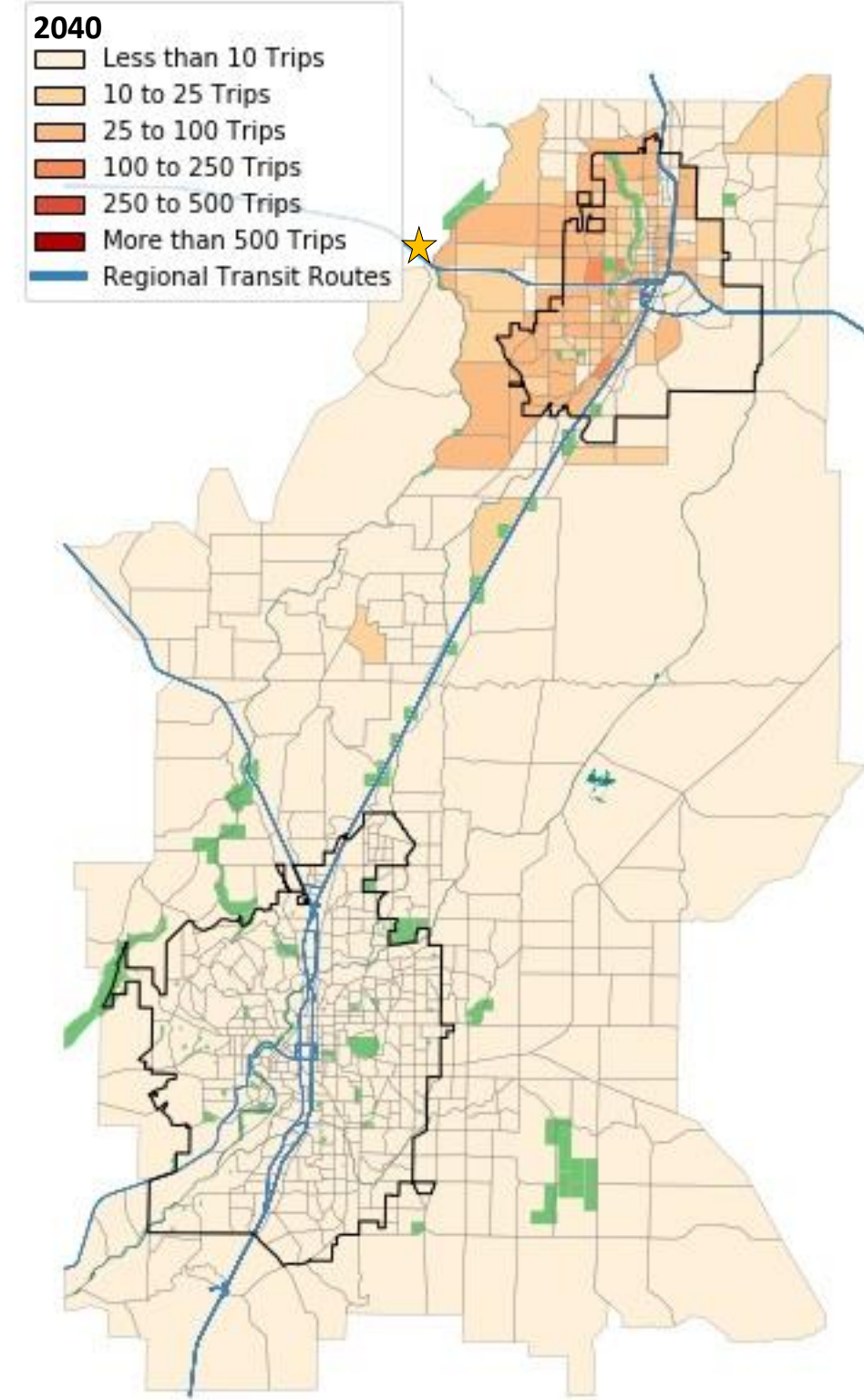
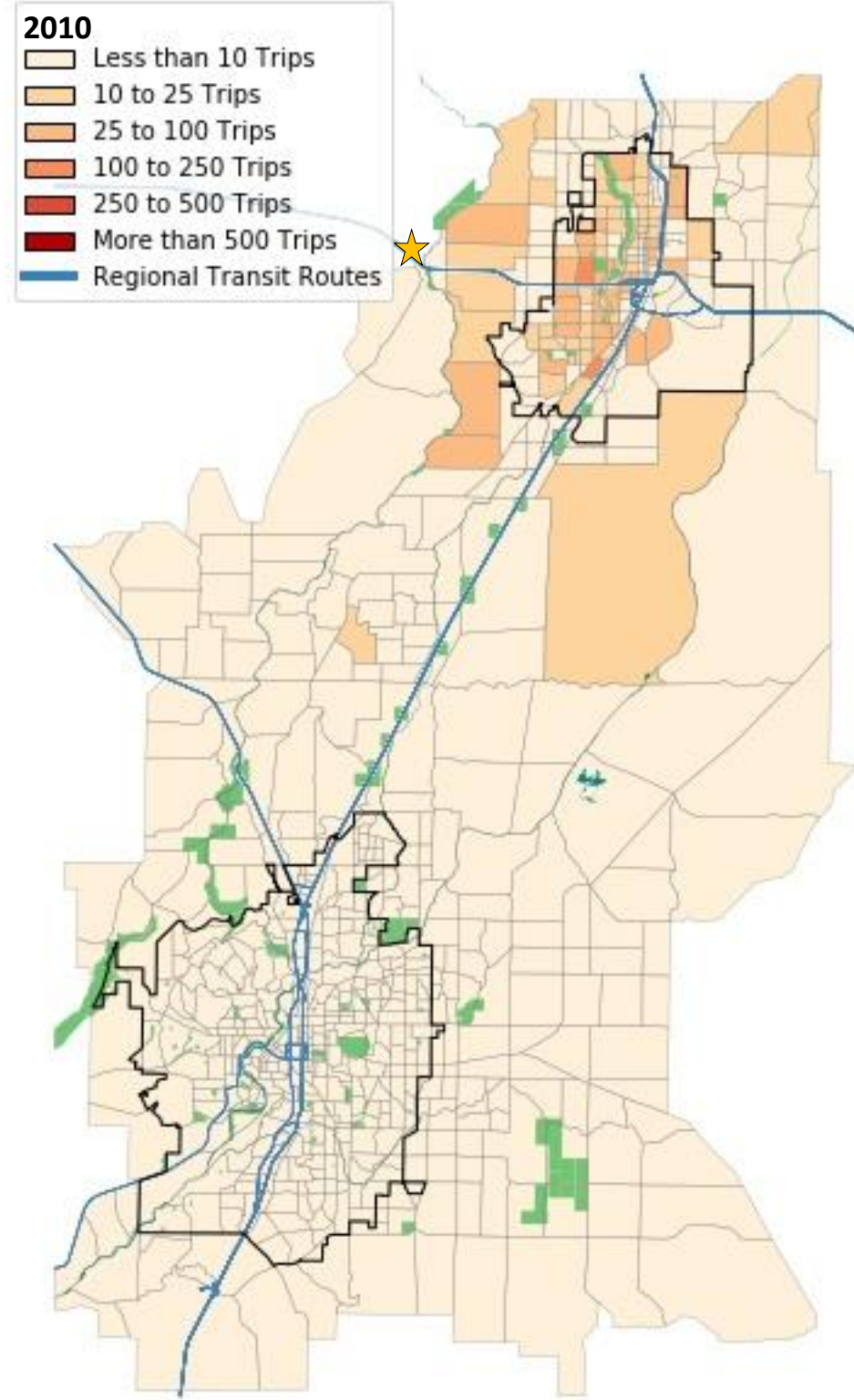
Trips to and from Direction of Sisters on Hwy 20

★ Star indicates where model assigned external trips



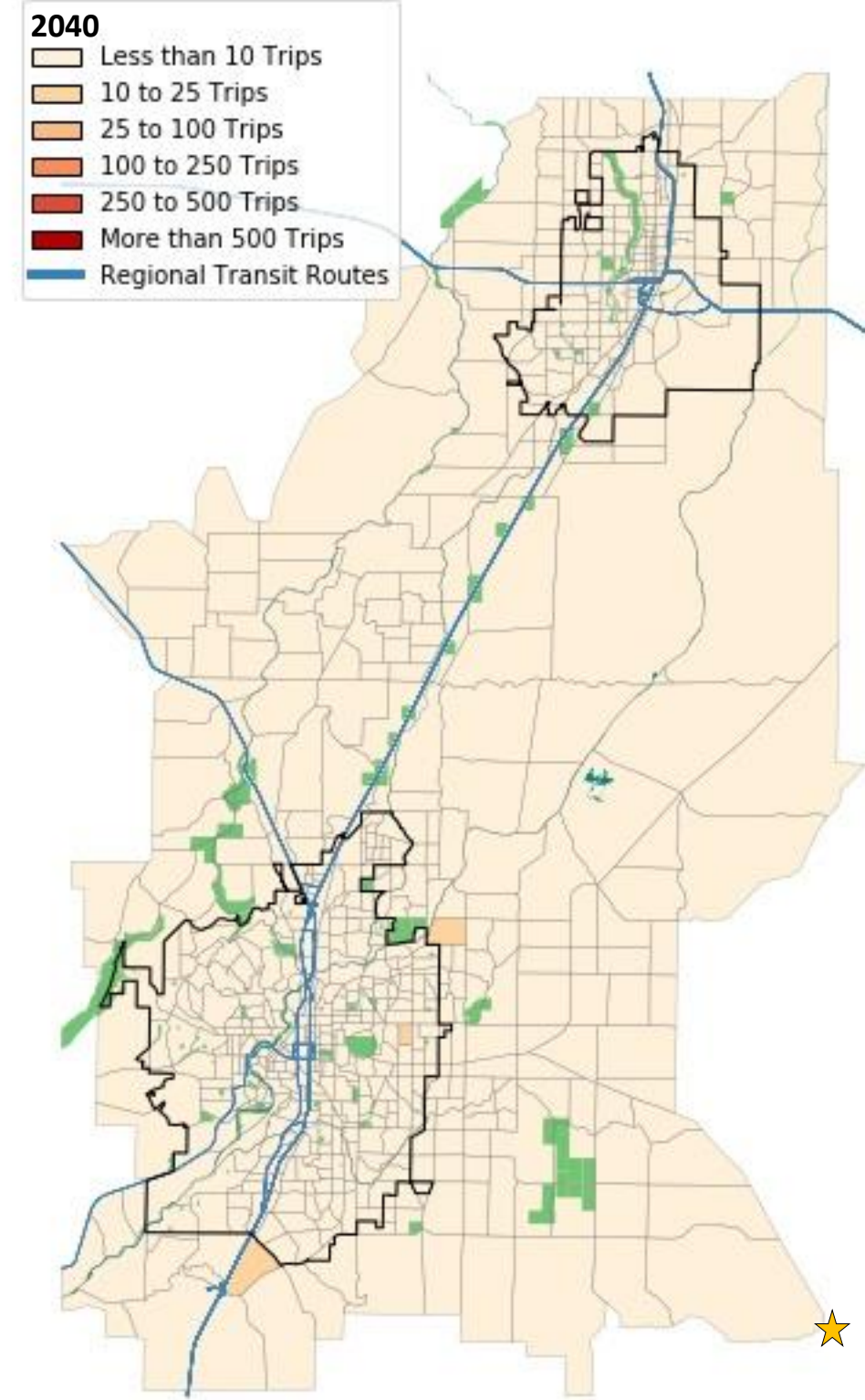
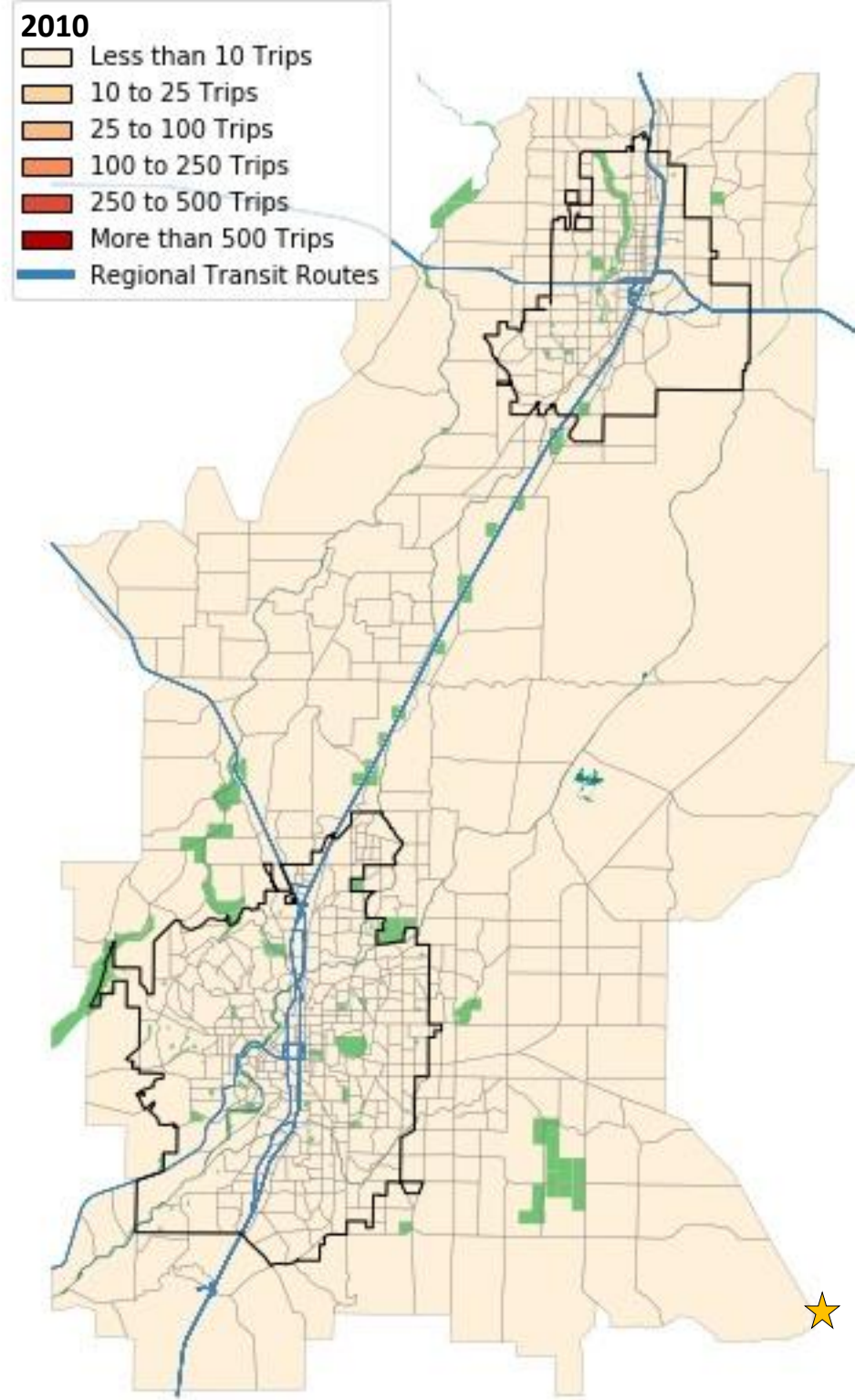
Trips to and from Direction of Sisters McKenzie Hwy

★ Star indicates where model assigned external trips



Trips to and from Direction of Eastern Oregon

★ Star indicates where model assigned external trips



Appendix E Bicycle and Pedestrian Connection Gaps in Bend

Bicycle Facilities

The current Bend TSP Update has identified several low-stress network (LSN) streets and projects throughout Bend, as shown in Figure 24A through Figure 24D. These streets and projects serve as a foundation for determining the deficiencies and needs for bicycle facilities providing access to CET's existing fixed-route service within Bend.

Population and employment densities in conjunction with these LSN streets and projects inform the proposed priority for addressing bicycle facility deficiencies and needs regarding the facility's role providing access to transit. Based on these factors, Table 22 identifies and prioritizes bicycle facility deficiencies and needs for non-LSN key routes and Table 23 prioritizes bicycle facility deficiencies and needs with respect to identified LSN projects.

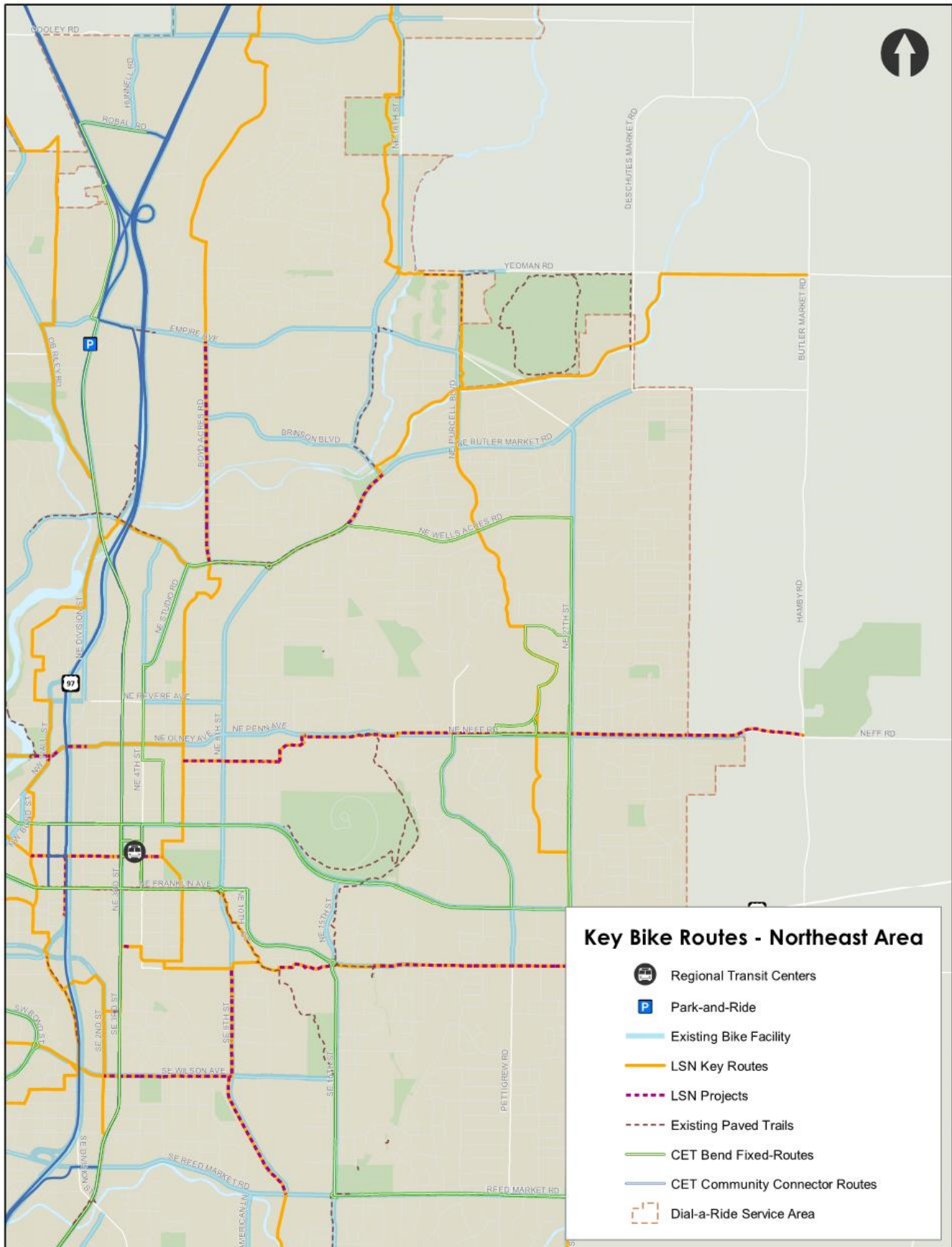


Figure 23A: Key Bike Routes - Northeast Area

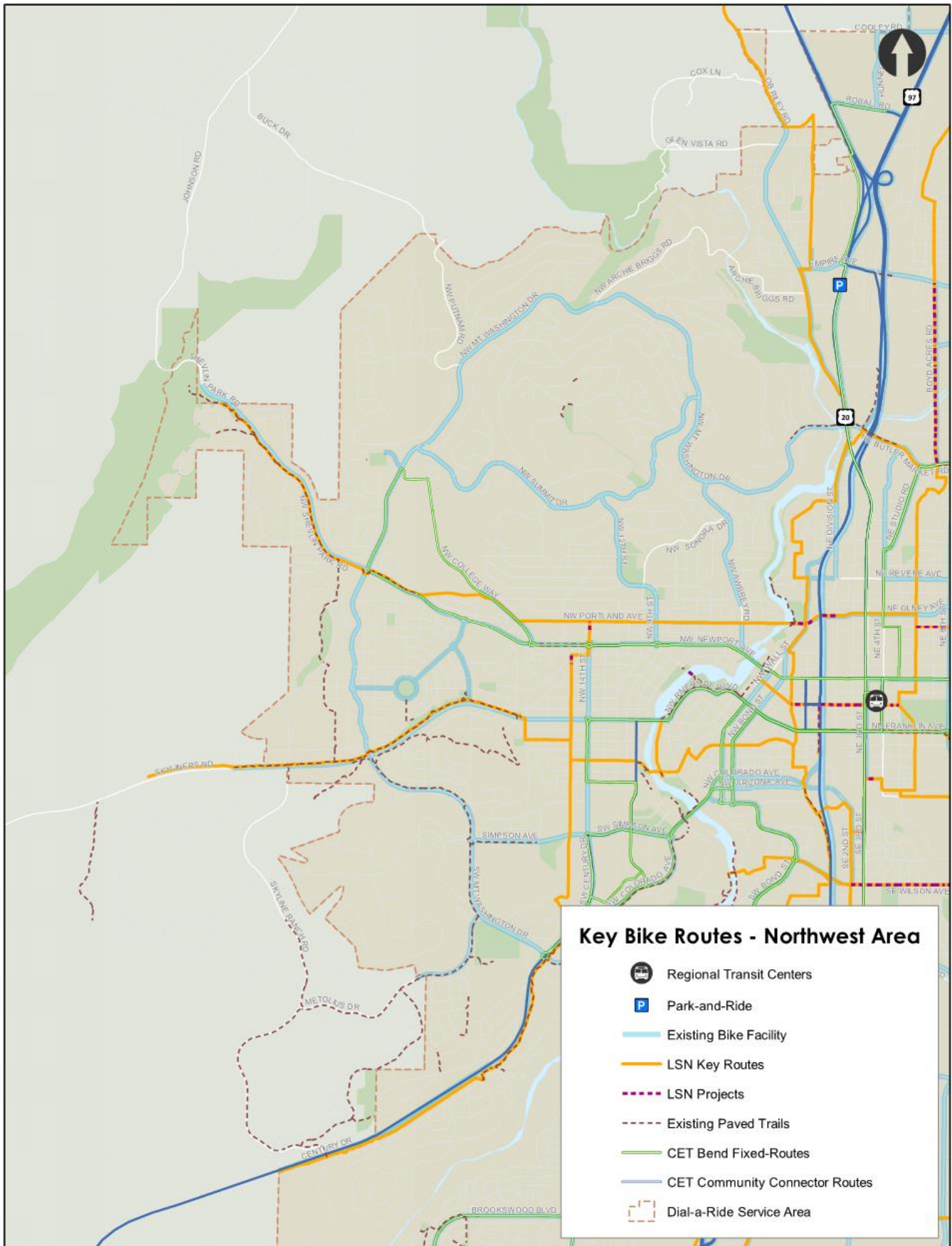


Figure 24B: Key Bike Routes - Northwest Area

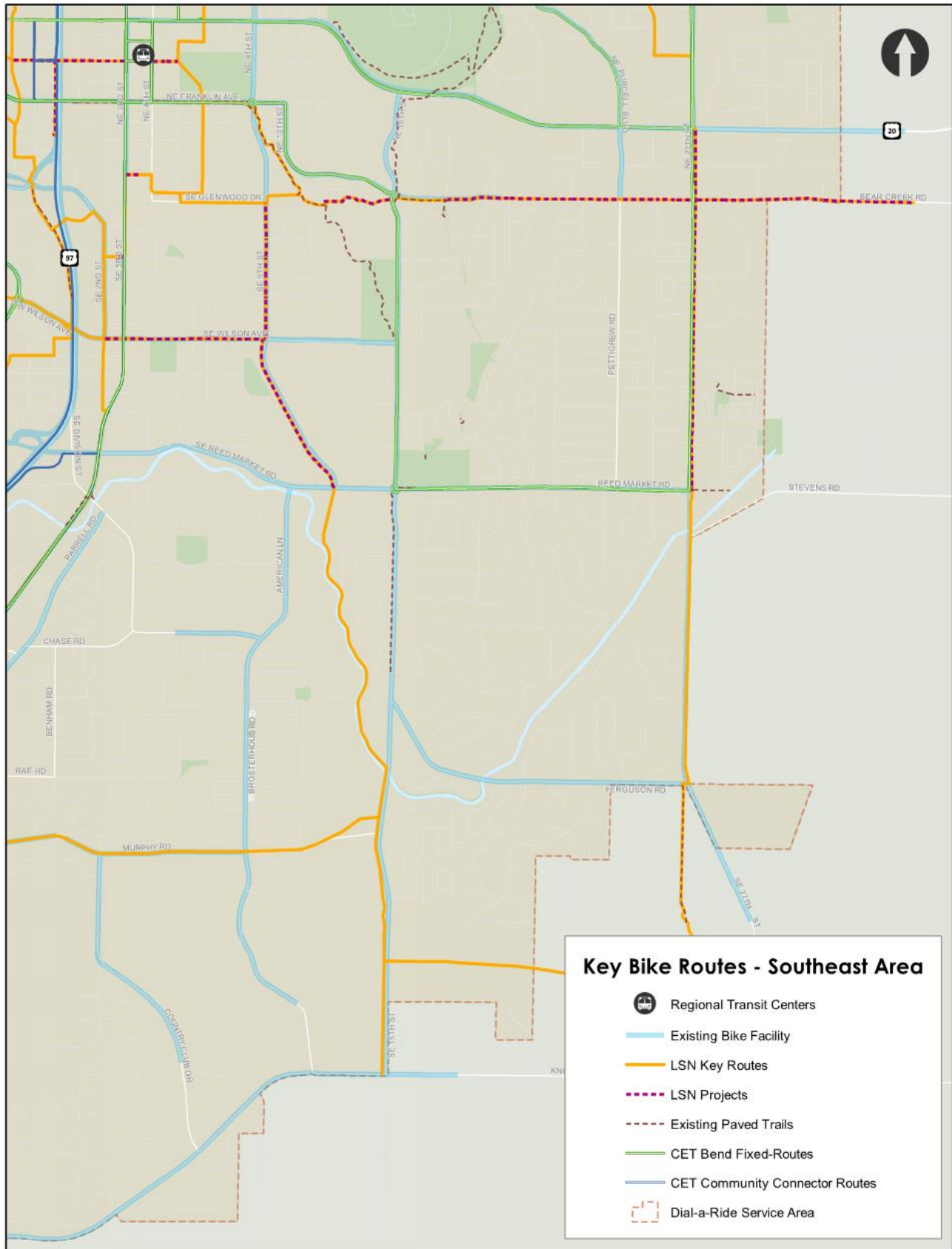


Figure 24C: Key Bike Routes - Southeast Area



Figure 24B: Key Bike Routes - Southwest Area

Table 22: Bicycle Facility Deficiencies and Needs for Non-LSN Projects

Quadrant	Street	From	To	2040 Population Density ¹	2040 Employment Density ²	Transit Access Priority
Northeast	NE Wells Acres Rd	NE Butler Market Rd	NE 27 th St	Medium	Low	Low
	NE Courtney Dr	NE Conners Ave	NE 27 th St	Medium	High	High
	NE 3 rd St	NE Greenwood Ave	NE Webster Ave	Low to Medium	Medium to High	Mid
	NE 5 th St	NE Greenwood Ave	NE Norton Ave	Medium	Low	Low
	NE Norton Ave	NE 4 th St	NE 5 th St	Medium	Low	Low
	NE 4 th St	NE Norton Ave	NE Revere Ave	Medium	Medium	Mid
	NE Greenwood Ave	US 97	NE 3 rd St	Medium	Medium	Mid
	NE 4 th St	NE Franklin Ave	NE Greenwood Ave	Medium	High	High
	NE Irving Ave	NE 3 rd St	NE 4 th St	Medium	High	High
Northwest	NW College Way	NW Mt. Washington Dr	NW Portland Ave	Low	Low to Medium	Low
	NW Newport Ave	NW Wall St	US 97	Low to Medium	High	Mid
	NW Hill St	NW Franklin Ave	NW Newport Ave	Medium	Medium to High	Mid
	NW Columbia St	NW Commerce Ave	NW Riverside Blvd	Medium	Low to Medium	Mid
	NW Albany Ave	NW 14 th St	NW Columbia St	Medium	Low to Medium	Mid
Southeast	SE 3 rd St	SE Cleveland Ave	SE Miller Ave	Medium to High	Low to Medium	Mid
Southwest	SW Columbia St	SW Colorado Ave	NW Commerce Ave	High	Medium to High	High
	SW Donovan Ave	SW Century Dr	SW Emkay Dr	High	High	High
	SW Emkay Dr	SW Donovan Ave	SW Columbia St	High	High	High
	Poplar St	Brookwood Blvd	Lodgepole Dr	Medium	Low	Low
	Lodgepole Dr	Poplar St	Mahogany St	Medium	Low	Low

¹Low Population Density
 Less than 2.5 to 5.0 persons per acre
Medium Population Density
 5.1 to 15.0 persons per acre
High Population Density
 16.0 to 25.0 persons per acre

²Low Employment Density
 Less than 5.0 to 10.0 jobs per acre (by TAZ)
Medium Employment Density
 10.1 to 20.0 jobs per acre (by TAZ)
High Employment Density
 20.1 to 49.8 jobs per acre (by TAZ)

Table 23: Bicycle Facility Deficiencies and Needs for LSN Projects

Quadrant	Street	From	To	2040 Population Density ¹	2040 Employment Density ²	Transit Access Priority
Northeast	Boyd Acres Rd	NE Butler Market Rd	Empire Ave	Low to Medium	Low to Medium	Low
	NE Butler Market Rd	Boyd Acres Rd	Brinson Blvd	Medium to High	Low to Medium	Mid
	NE Norton Ave	NE 6 th St	NE Neff Rd	Medium	Low	Low
	NE Neff Rd	NE Parkridge Dr	Hamby Rd	Medium to High	Low to Medium	Mid
	NE Olney Ave	US 97	NE 1 st St	Medium to High	Medium to High	High
	NE Hawthorne Ave	US 97	NE 5 th St	Medium	Medium to High	Mid
	NE Franklin	US 97	NE 8 th St	Medium	Low to Medium	Mid
	US 97		NE Hawthorne Ave	Medium	Medium to High	Mid
	NE Burnside Ave	NE 3 rd St	NE 4 th St	Medium	Low	Low
	NE Burnside Ave	Multi-use path	NE Bear Creek Rd	Low	Low	Low
NE Bear Creek Rd	NE Alpenview Ln	East of UGB	Medium to High	Low	Mid	
Northwest	NW 14 th St	NW Ogden Ave	NW Portland Ave	High	Low	Mid
	NW Newport Ave	NW College Way	NW 12 th St	Medium to High	Low	Mid
	NW 15 th St	NW Lexington Ave	NW Milwaukee Ave	Medium to High	Low	Low
	NW Portland Ave	Deschutes River	US 97	Low to Medium	Medium	Mid
	NW Nashville Ave Ped Bridge	NW Nashville Ave	NW Riverside Blvd	Medium	Low	Low
	NW Hawthorne Ave	NW Harriman St	US 97	Medium to High	Medium to High	High
	NW Franklin Ave	NW Harriman St	US 97	Medium to High	Medium to High	High
Southeast	SE Miller Ave	SE 3 rd St	SE Heyburn St	High	Low	Mid
	SE Wilson Ave	SE 2 nd St	SE 9 th St	High	Low	Mid
	SE 9 th St	SE Reed Market Rd	SE Glenwood Dr	Low	Low	Low
	SE 27 th St	SE Reed Market Rd	Greenwood Ave	Medium to High	Low	Mid

¹Low Population Density

Less than 2.5 to 5.0 persons per acre

Medium Population Density

5.1 to 15.0 persons per acre

High Population Density

16.0 to 25.0 persons per acre

²Low Employment Density

Less than 5.0 to 10.0 jobs per acre (by TAZ)

Medium Employment Density

10.1 to 20.0 jobs per acre (by TAZ)

High Employment Density

20.1 to 49.8 jobs per acre (by TAZ)

Pedestrian Facilities

The current Bend TSP Update has also identified existing sidewalks and sidewalk gaps along most or all streets within Bend. Figure 25A through Figure 25D focus on sidewalks along major streets and illustrates where sidewalks exist either on one side of the roadway or not at all. These existing sidewalk maps show deficiencies and needs for pedestrian facilities within CET bus stop walksheds within Bend. Evaluating population and employment densities in conjunction with existing sidewalk gaps inform the proposed priority for addressing pedestrian facility deficiencies and needs regarding the facility's role providing access to transit. Table 24 identifies and prioritizes pedestrian facility deficiencies and needs – only within the 0.25-mile and 0.50-mile walksheds of existing CET bus stops – based on these factors.

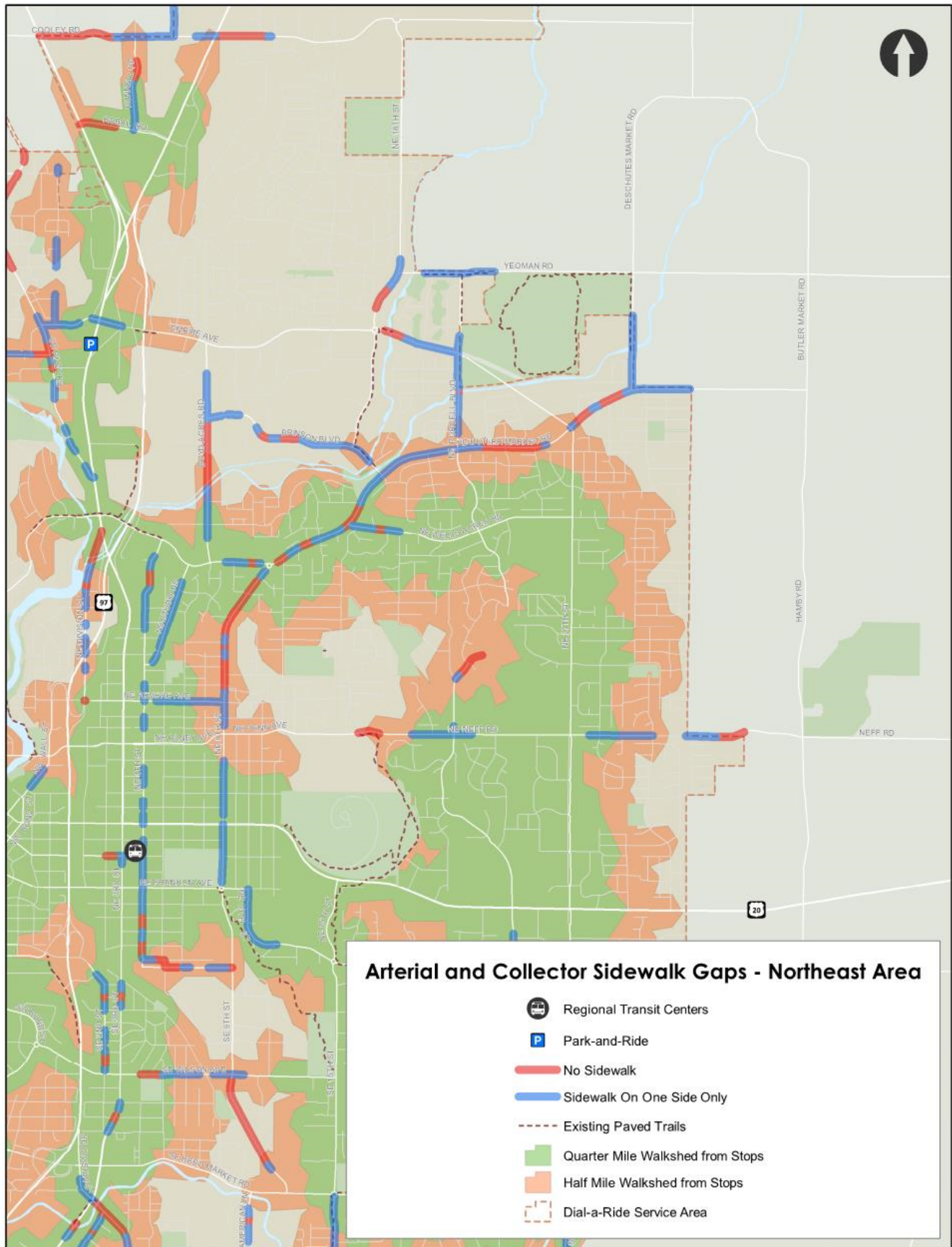


Figure 24A: Major Sidewalk Gaps - Northeast Area

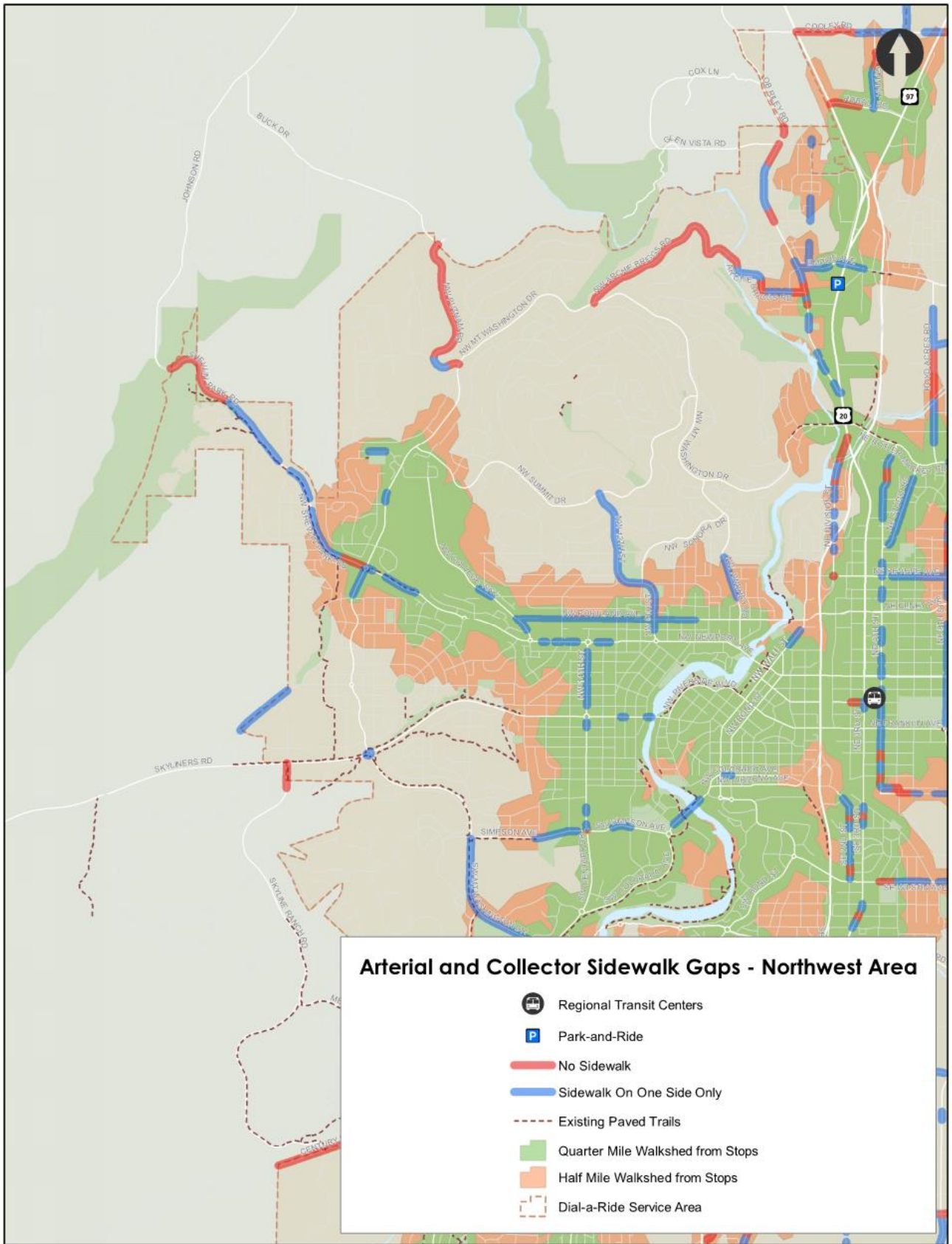


Figure 25B: Major Sidewalk Gaps - Northwest Area

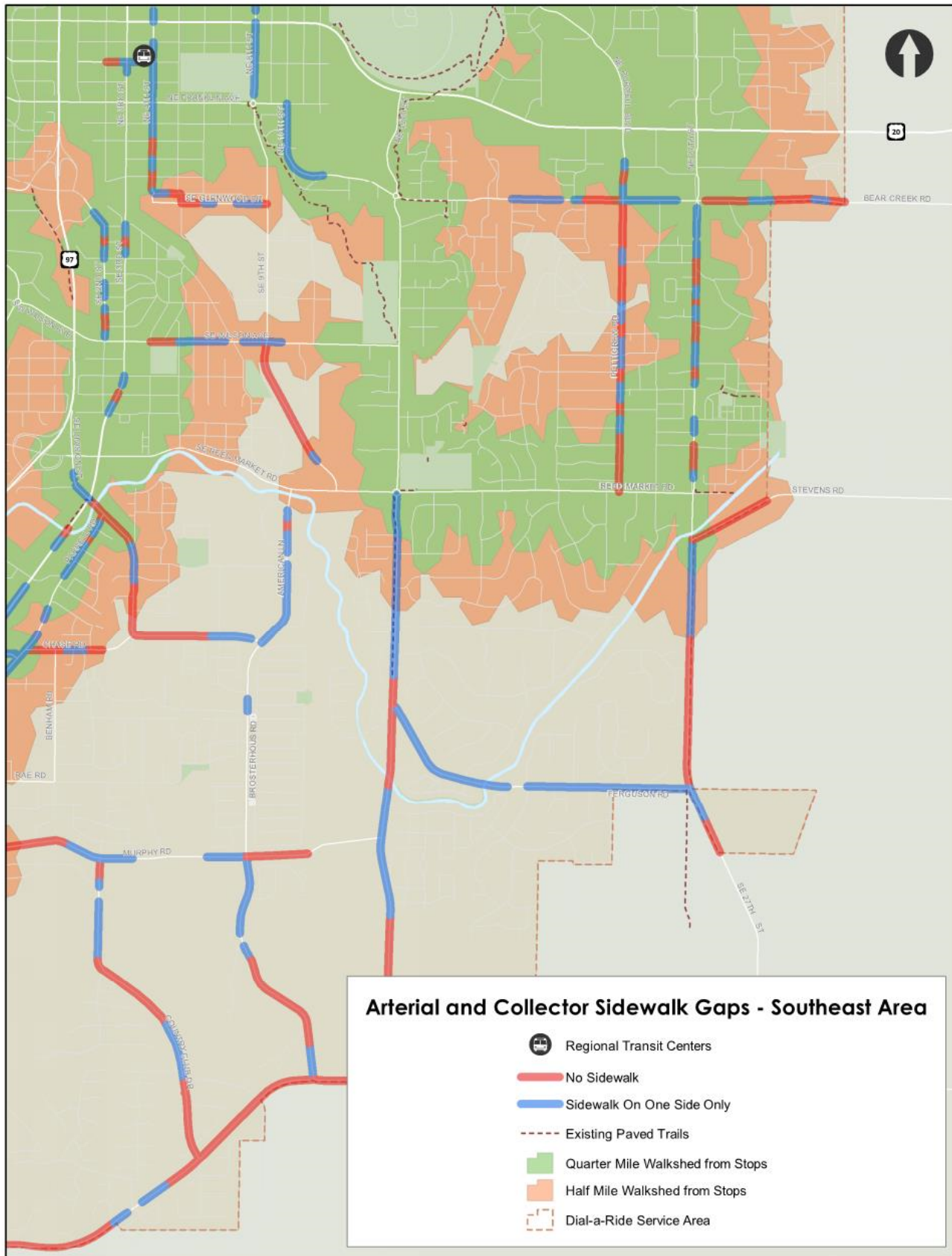


Figure 25C: Major Sidewalk Gaps - Southeast Area

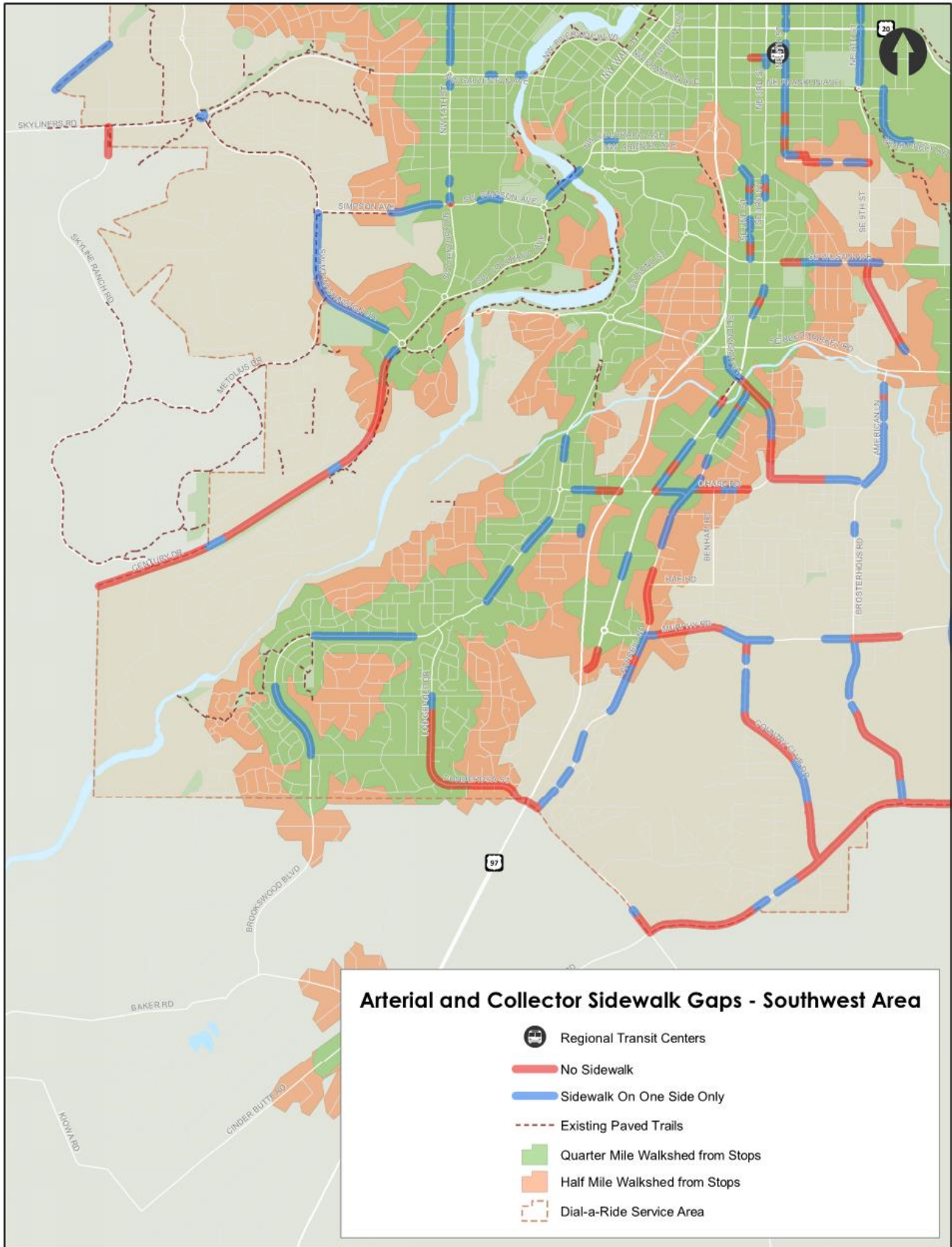


Figure 25D: Major Sidewalk Gaps - Southwest Area

Table 24: Pedestrian Facility Deficiencies and Needs

Quadrant	Street	From	To	Gap	2040 Population Density ¹	2040 Employment Density ²	Transit Access Priority
Northeast	Hunnell Rd	Robal Rd	Cooley Rd	One side/both sides	Low	Low to Medium	Mid
	Cooley Rd	West of Berg Ln	East of Berg Ln	One side	Low	Medium to High	Low
	Cooley Rd	West of US 97	East of US 97	One side/both sides	Low	Low	Low
	Robal Rd	US 29	Hunnell Rd	Both sides	Low	Medium to High	High
	Boyd Acres Rd	North of NE Butler Market Rd	South of Brinson Blvd	One side/both sides	Medium to High	Medium to High	High
	NE Butler Market Rd	East of Boyd Acres Rd	East of NE 27 th St	One side/both sides	High	Low to Medium	Mid
	NE Wells Acres Rd	NE Butler Market Rd	NE Daggett Ln	One side/both sides	Medium to High	Low	Mid
	Brinson Blvd	West of NE 18 th St	West of NE Butler Market Rd	One side	Low	Medium	Low
	NE Purcell Blvd	North of NE Butler Market Rd	NE Cradle Mountain Way	One side	Medium	Low	Low
	NE 4 th St	NE Alden Ave	South of NE Butler Market Rd	One side/both sides	Medium	Medium to High	Mid
	NE Division St	NE 2 nd St	US 97	One side/both sides	Low to Medium	Medium	Mid
	NE Studio Rd	NE 4 th St	South of NE Butler Market Rd	One side	Medium	Low	Low
	NE Revere Ave	NE 4 th St	NE 8 th St	One side	High	Low	Mid
	NE 8 th St	NE Franklin Ave	NE Butler Market Rd	One side/both sides	Medium to High	Low	Mid
	NE Alden Ave	NE 4 th St	NE 5 th St	One side/both sides	Medium	Low	Low
	NE 10 th St	NE Franklin Ave	NE Alden Ave	One side	Low	Low	Low
	NE Neff Rd	West of NE Purcell Blvd	East of NE Purcell Blvd	One side	High	Medium	Mid
	NE Purcell Blvd	NE Moonlight Dr	End of NE Purcell Blvd	One side/both sides	Medium to High	Medium	Mid
	NE Neff Rd	East of NE 27 th St	NE Providence Dr	One side	High	Low	Mid
	NE Bear Creek Rd	SE Cessna Dr	East of Dantili Rd	One side/both sides	Medium	Low	Low
NE Purcell Blvd	NE Bear Creek Rd	North of NE Twin Knolls Dr	One side/both sides	Low to Medium	Low to Medium	Mid	
Northwest	NW Shevlin Park Rd	North of NW Shevlin Meadow Dr	West of NW Silas Pl	One side/both sides	Low to Medium	Low	Low
	NW Mount Washington Dr	NW Shields Dr	NW Shevlin Park Rd	One side	Low to Medium	Low	Low
	NW College Way	West of Saginaw Ave	West of NW Shevlin Park Rd	One side	Low to Medium	Low	Low
	NW Newport Ave	NW College Way	NW 13 th St	One side	Medium to High	Low	Low
	NW Portland Ave	NW College Way	NW 6 th St	One side	Medium to High	Low	Low
	NW 12 th St	NW Ogden Ave	NW Vicksburg Ave	One side	Medium	Low	Low
	NW Awbrey Rd	NW Saginaw Ave	North of NW Wilmington Ave	One side	Medium	Low	Low
	NW 14 th St	NW Fresno Ave	NW Newport Ave	One side	Medium to High	Low	Low
Southeast	SE Glenwood Dr	NE Logsdan St	SE 9 th St	One side/both sides	Low to Medium	Low	Low
	SE Pettigrew Rd	SE Reed Market Rd	NE Bear Creek Rd	One side/both sides	Medium	Low	Low
	SE 27 th St	North of SE Reed Market Rd	NE Bear Creek Rd	One side/both sides	Medium to High	Low	Mid
	SE 2 nd St	SE Wilson Ave	SE Aune St	One side/both sides	Low	Low to Medium	Low
	SE 3 rd St	SE Miller Ave	SE Railroad St	One side/both sides	Medium	Low to Medium	Mid
	SE 3 rd St	SE Cleveland Ave	SE Roosevelt Ave	One side/both sides	Medium to High	Low to Medium	Mid
	SE 3 rd St	West of canal	East of canal	One side/both sides	Medium	Low to Medium	Mid
	SE 3 rd St	Powers Rd	Reed Ln	One side/both sides	Low	Medium	Low
	SE 3 rd St	North of Pinebrook Blvd	Badger Rd	One side	Low	Medium	Low
	SE 3 rd St	US 97 on-ramp	South of Murphy Rd	Both sides	Low to Medium	Low to Medium	Mid
	SE Wilson Ave	SE 4 th St	East of SE 9 th St	One side/both sides	High	Low	Mid
	Brosterhous Rd	Rolen Ave	SE Hayes Ave	One side/both sides	High	Low	Mid
	Parrell Rd	Knightsbridge Pl	Brosterhous Rd	One side/both sides	Medium	Low to Medium	Mid
	Chase Rd	Parrell Rd	East of Mowitch Dr	One side/both sides	Medium to High	Low	Mid
	SE 15 th St	South of SE Westview Dr	SE Reed Market Rd	One side	Low to Medium	Low	Low
Southwest	SW Simpson Ave	West of SW Century Dr	SW Columbia St	One side	High	Medium	Mid
	Cascade Lakes Scenic Byway	East of SW Simpson Ave	West of SW Industrial Way	One side	Low	Low	Low
	SW Mt Washington Dr	SW Yates Dr	SW Simpson Ave	One side	Medium	Low to Medium	Mid
	SW Century Dr	West of Elder Ridge St	SW Mt Washington Dr	One side/both sides	Low to Medium	Low	Low
	Brookwood Blvd	Poplar St	Rock Bluff Ln	One side	Medium to High	Low	Mid
	Powers Rd	West of Blakely Rd	US 97	One side/both sides	Medium to High	Low	Mid
	Ponderosa St/Lodgepole Dr	West of US 97	Mahogany St	One side/both sides	Medium to High	Low	Mid

¹**Low Population Density**
Less than 2.5 to 5.0 persons per acre
Medium Population Density
5.1 to 15.0 persons per acre
High Population Density
16.0 to 25.0 persons per acre

²**Low Employment Density**
Less than 5.0 to 10.0 jobs per acre (by TAZ)
Medium Employment Density
10.1 to 20.0 jobs per acre (by TAZ)
High Employment Density
20.1 to 49.8 jobs per acre (by TAZ)