

County Connection

2018 ON-BOARD SURVEY FINAL REPORT

June 2018



County Connection

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INTRODUCTION

Nelson\Nygaard Consulting Associates, Inc., led a data collection effort with the help of County Connection staff for the County Connection fixed-route public transit system to understand travel patterns, fare media usage, demographic characteristics of riders, and recommendations for service improvement. This report summarizes the findings from three data collection efforts: an on-board passenger survey, a paper fare transfer analysis, and a visual inspection of school routes. The on-board surveys asked riders of fixed-, non-school routes about their usage of, and opinions about the County Connection transit system. The paper transfers were collected by bus line and direction for an entire day of weekday service to analyze transfer patterns. Last, County Connection conducted a visual inspection of the 600-series routes for Title VI considerations using on-board video footage; data from this effort was analyzed by Nelson\Nygaard. The following sections detail each data collection effort and provide a summary of the findings.

County Connection

ON-BOARD SURVEY ANALYSIS

OVERVIEW

The survey data collection took place on February 27th and 28th, March 1st, 6th and 7th, for weekday service¹, and on Saturday, March 24th, 2018.

The survey, available in both Spanish and English, included 25-questions and was printed on paper to distribute to passengers on all fixed routes except the 600-series routes. Survey questions were designed to capture information regarding travel patterns, personal demographic characteristics, and recommendations for service improvements.

A total of 907 surveys were collected over the survey period, including 704 by weekday passengers and 203 by weekend passengers, and including 35 in Spanish. The response rate by route was sufficient to provide a confidence level of 95% with a margin of error of 5% at the system level. As shown in Figure 2-1, survey responses collected were proportionate to ridership by route.

On weekdays, the highest percentages of surveys were completed by passengers on Routes 4 and 20, accounting for 20% and 10% of collected surveys, respectively. These are two of County Connection's highest ridership routes. Route 10 was the only other route to contribute more than 5% of total collected surveys (6%). Routes 2 and 3 carry fewer than 100 daily boardings, among the lowest in the system. They received no more than 1% of total collected surveys. On the weekend Routes 4 and 6 had the highest percentages of completed surveys, making up 15% each of the total collected weekend surveys. Route 4 carries 25% of average weekend ridership, the most of any weekend route, while Routes 301 and 315 serve just 2% of weekend ridership, respectively.

¹ Weekday data was collected on Tuesdays, Wednesdays, and Thursdays to capture typical weekday travel behaviors.

County Connection

Figure 2-1 Weekday Survey Responses by Route

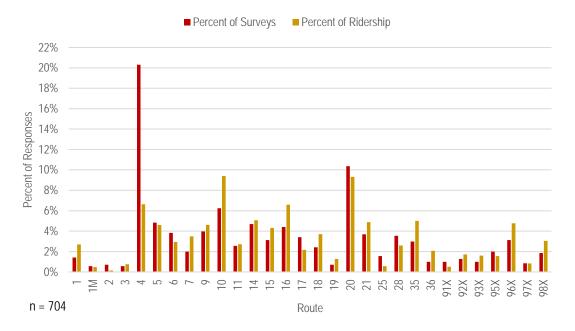
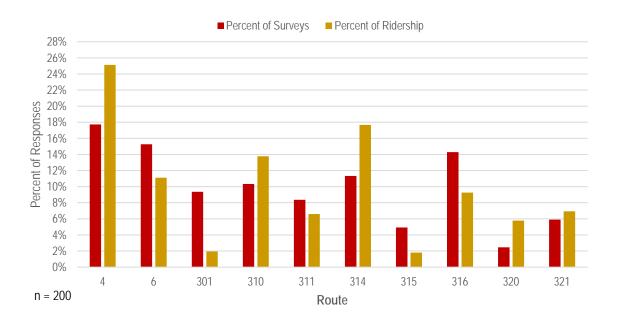


Figure 2-2 Weekend Survey Responses by Route



DEMOGRAPHICS

Where Riders Live

The distribution of completed surveys by riders' home zip code is shown in Figure 2-3. Zip codes located in Martinez, Concord, Walnut Creek, and Pittsburg had the highest number of surveyed County Connection passengers, with 30 or more survey responses per zip code in these cities. Other east Contra Costa County cities, such as Lafayette, Pleasant Hill, and San Ramon, had the between 8 and 30 responses per zip code.

Sonoma Napa Fairfield Suisun City American Canyon Benicia Novato Hercu San Rafael Richmond Corte Madera Tiburon Albany Belvedere Orinda Sausalito Moraga Town Emeryville Piedmont Oakland Alameda San Francisco Dublin San Leandro Daly City Pleasanton South San Francisco Hayward San Bruno Union City Burlingame Hillsborough San Mateo Foster City Number of responses Fremont Newark Belmont 1 - 2 San Carlos Redwood City Menlo Park 3 - 7 Half Moon Bay East Palo Alto 8 - 15 Atherton Milpitas 16 - 30 Woodside San Jose 31 - 114 Sunnyvale Santa Clara N) 7 10 Miles Los Altos Hills

Figure 2-3 Home Zip Codes of Combined Weekday and Weekend Surveyed Riders

Race/Ethnicity

Among weekday respondents, 20% identify as Hispanic or Latino (Figure 2-4). A somewhat larger portion of weekend respondents, 28%, identify as Hispanic or Latino. Results of racial self-identification questions collected and displayed in Figure 2-5 show further information about the demographic characteristics of County Connection passengers who took the survey. The largest percentage of passengers self-identified as White (46%) followed by Hispanic or Latino, Asian/Pacific Islander, and Black/African American, which comprise 20%, 19%, and 16%, respectively. The "Other" category was selected by 12% of respondents and about 46% of those wrote in Latino/Hispanic as their identification in the survey. On weekdays, the routes most likely to be ridden by communities of color were Routes 7, 16, 35, and 96X.

On weekends, 41% of respondents self-identified as White, followed by 28% Hispanic or Latino, 20% Asian/Pacific Islander, 19% Black/African-American, 12% Multiracial (12%), and 8% selected "Other." About half of the 8% who self-identified as "Other" wrote in Hispanic/Latino as their race/ethnicity. County Connection routes are likely to attract varying levels of racial/ethnic diversity in their rider cohorts, as shown in Figure 2-6. On weekends, people of color were most likely to ride Routes 6, 310, 314, and 321.

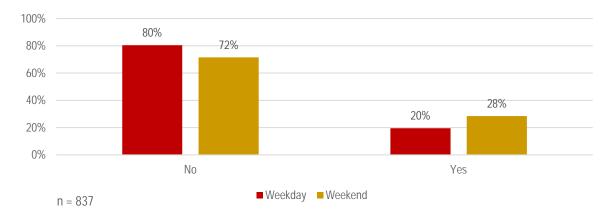
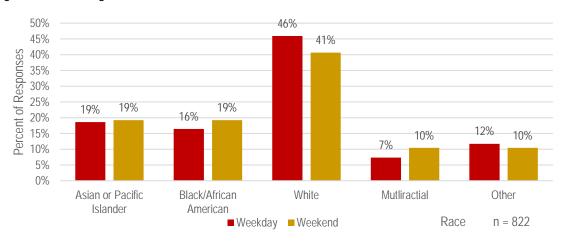


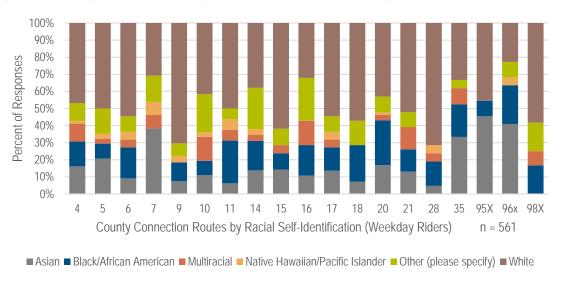
Figure 2-4 Respondents Identifying as Hispanic or Latino



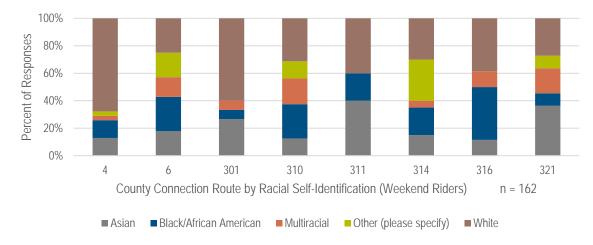


County Connection

County Connection Route by Racial Self-Identification, Weekday



County Connection Route by Racial Self-Identification, Weekend Figure 2-7



Language

Among respondents, over one-third of weekday riders (38%) speak a language other than English at home (Figure 2-8). On weekends, this portion is 37%. Spanish is the most common language other than English spoken at home, with 15% of weekday riders and 21% of weekend riders reporting it is spoken at home. Filipino/Tagalog (4%) and Chinese (2%) are the only other languages that were selected by 2% or more of respondents. Riders who speak less commonly reported languages were asked to list them under the general category, "Other." Some of the languages included French (1.2%), Hindi (1.1), Russian (0.8), Vietnamese (0.8%), Farsi (0.6%), and Japanese (0.6%).

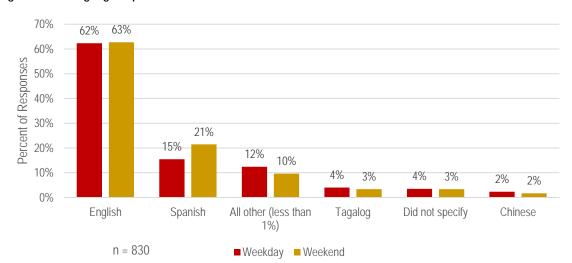
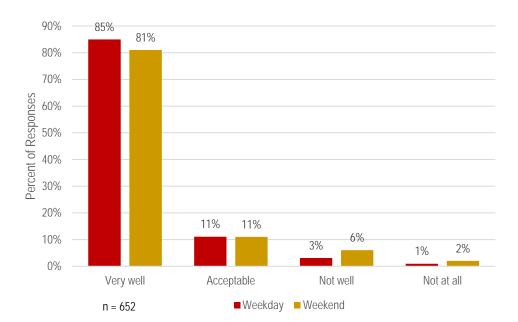


Figure 2-8 Languages Spoken in Household

The multi-lingual passengers identified in the survey effort tend to be proficient in English, as shown in Figure 2-9. This result is likely influenced by selection bias and underestimates the percentage of riders with limited English proficiency, as the group of passengers who responded to the printed survey was biased towards those passengers who felt confident taking the survey. The survey was offered in Spanish, but most surveyors were not Spanish speaking and the survey was not available in other languages. Of weekday riders, 85% responded that they speak English "very well," while 11% marked that they speak English at an "acceptable" level. Only 4% stated they did not speak English well or at all. This pattern is similar among weekend riders, 81% of whom reported that they speak English "very well." About 8% of weekend riders do not speak English well or at all.

County Connection

Figure 2-9 **English Proficiency of Passengers**

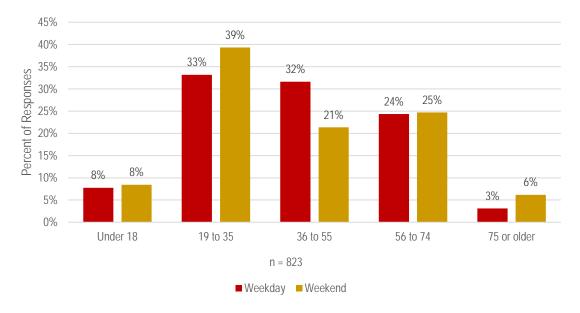


County Connection

Age

The age distribution of surveyed riders is shown in Figure 2-10. Surveyors noted that younger passengers were typically more reluctant to fill out a survey. On both weekday and weekend surveys, just 8% of respondents were under the age of 18.

Figure 2-10 Passenger Age Distribution

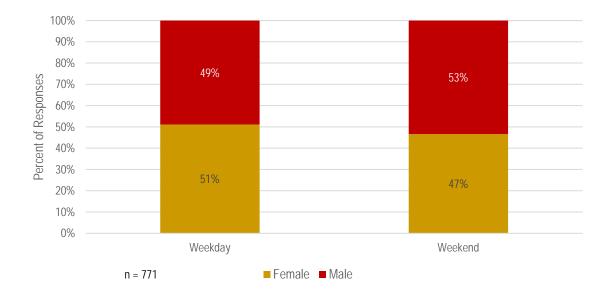


County Connection

Gender

The gender balance of surveyed riders mirrors the gender balance nationally. Out of 606 weekday respondents, 51% self-identified as female, and 49% identified as male (Figure 2-11). During the weekend, male survey respondents made up 53% of the riders.

Figure 2-11 Passenger Gender



County Connection

Income

Weekend respondents were more likely to have lower household income levels than weekday riders, as shown in Figure 2-12. Out of 603 weekday respondents, 51% live in households that make under \$35,000 per year, compared to 63% of weekend respondents. The \$35,000 household income threshold is commonly used to designate "low-income" communities because it is just below 150% of the federal poverty line for a family of four.

Some County Connection routes are more likely to have low-income riders, as shown in Figure 2-13. On weekdays, Routes 14 and 16 are most likely to serve low-income communities, as more than 80% of surveyed riders reported household incomes below \$35,000. On weekends, these include Routes 6, 311, 314, and 316, of which 70% of riders live in low-income households.



Figure 2-12 Approximate Annual Passenger Household Income

County Connection

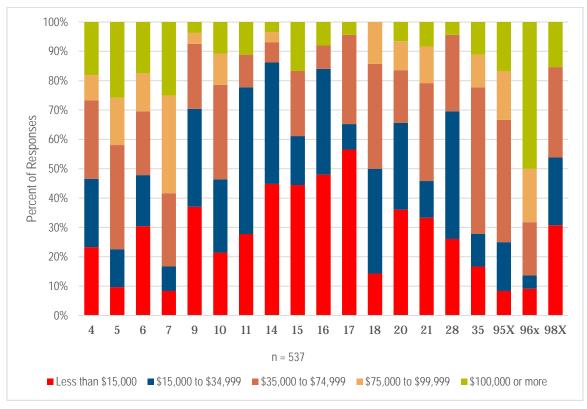


Figure 2-13 County Connection Route by Household Income, Weekday

Note: Routes with fewer than 10 reported household incomes are excluded from the graphic above.

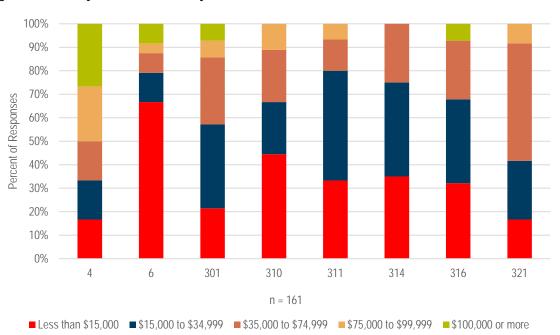


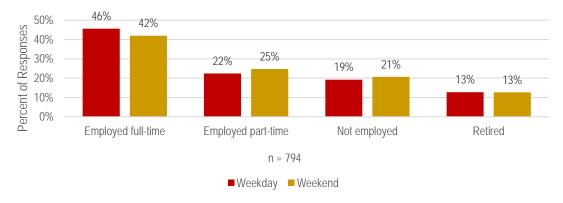
Figure 2-14 County Connection Route by Household Income, Weekend

Note: Routes with fewer than 10 reported household incomes are excluded from the graphic above.

Employment Status

The employment status of County Connection passengers surveyed is shown in Figure 2-15. Out of 595 weekday rider responses, 68% were employed at least part-time. Likewise, 67% of 174 weekend riders indicated they were employed at least part-time.

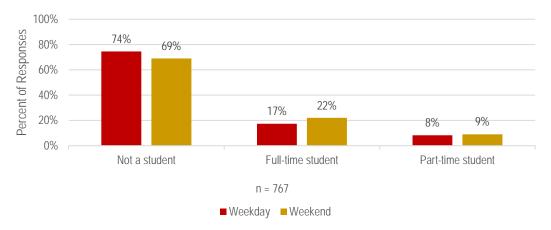
Figure 2-15 Passenger Employment Status



Student Status

Students made up a higher proportion of respondents on weekdays than on weekends, as shown in Figure 2-16. Full or part-time students made up just over a quarter of the weekday survey responses, with 17% enrolled full-time and 8% enrolled part-time out of 595 responses compared to 22% full-time and 9% part-time on weekends.

Figure 2-16 Passenger Student Status



TRAVEL PATTERNS

Choosing County Connection

Surveyed riders were asked their primary reason for choosing County Connection for their current trip (Figure 2-17). While the survey asked for a single response, some people chose multiple reasons. The patterns were similar between weekday and weekend answers, with convenience and lack of a car accounting for almost half of all reasons for riding County Connection on weekdays, and over half on weekends. Based on write-in comments, it could be useful in future surveys to clarify the lack of car being due to hardship or due to choice, and unable to drive being due to choice or not. There were cases when people indicated that they were unable to drive because they did not have a car. Those responses were reclassified as lack of having access to a car. These results suggest that a significant portion of County Connection passengers do not have access to a vehicle, and that, as a result, County Connection is likely their primary means of transportation.

People who answered "Other" also commonly cited "work" or "going to work" as why they chose to ride. This could indicated that people ride because it is paid for or subsidized by their employer or because they don't have access to a vehicle, or that they prefer to commute this way. Those responses were kept as "other." On weekends, there were a small number of people who were riding for fun with their kids.

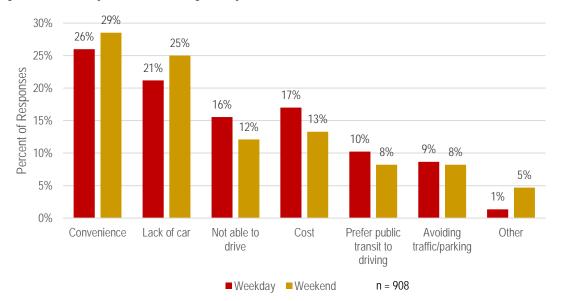


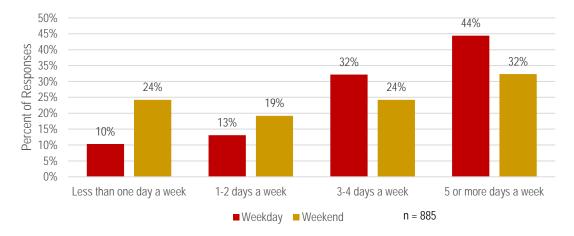
Figure 2-17 Primary Reason for Riding County Connection

County Connection

Frequency of Use

Riders were asked how often they rode County Connection. Out of 687 weekday respondents, 305 (or 44%) rode five or more days per week, as shown in Figure 2-18, compared to only 32% of the 198 weekend respondents. Surveyed weekend riders were more likely to take County Connection infrequently, with 24% of respondents using the service less than one day a week, compared to 10% of weekday respondents.

Figure 2-18 Frequency of Use on County Connection

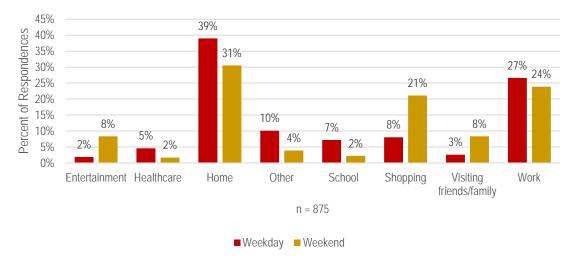


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Trip Purpose

Respondents were asked about the origins and destinations of their current trip (Figure 2-19). Out of 695 weekday respondents, 39% were traveling home, and 27% were going to work. Shopping made up 8% of reported weekday trip purposes. Among those who answered "Other", 14 respondents wrote in they were connecting to BART (20%) and nine wrote in the library (13%). The vast spread of trip purposes speaks both to the time of day of survey data collection, as well as the many varied destinations people can reach on County Connection. On weekends, a much higher portion of riders were making shopping-related trips (19%, compared to 8% on weekdays). Out of 26 responses from weekend riders who selected a trip purpose of "Other," nine were attending the "March for Our Lives" demonstration in Walnut Creek.

Figure 2-19 Passenger Trip Purpose



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Access to Backup Transportation

Respondents were also asked about how they would make their trip if County Connection were not available (Figure 2-20). Taxi/Uber/Lyft was the most common choice, selected by 22% of surveyed weekday riders and a quarter of weekend respondents, followed by walking (21%) and driving a personal vehicle (16%). These results were similar for weekend riders, of whom 27% of respondents selected Taxi/Uber/Lyft, 26% selected walking, and 13% selected driving a personal vehicle. A significant portion of riders, 15%, would not make their trip at all without County Connection, highlighting the service's importance for riders who do not have alternative mobility options available.

30% 26% 25% Percent of Responses 25% 22% 21% 20% 16% 15% _{14%} 13% 15% 12% 9% 10% 7% 5% 4% 3% 5% 0% Taxi/Uber/Lyft Walk Drive own Wouldn't make Get a ride with Other (please Ride bicycle Carpool/vanpool vehicle trip friend/family specify) member n = 863■ Weekday ■ Weekend

Figure 2-20 How Would Respondents Make Trip without County Connection

County Connection

Transfers

Surveyed riders were asked if they had to transfer to another bus at any point to complete their trip. Out of 688 weekday respondents, 322 (47%) needed to transfer at least once to complete their trip, as shown in Figure 2-21. This proportion fell to 34% for the 198 weekend riders.

66% 70% 60% 53% Percent of Responses 50% 40% 27% 25% 30% 20% 15% 8% 10% 5% 2% 0% None One Two Three or more

Figure 2-21 Number of Transfers per Trip, Weekdays and Weekends

n = 886

Of the 322 riders who required a transfer to complete their trip, 56% did so within the County Connection system, as shown in Figure 2-22.2 Figure 2-23shows the distribution of routes of these internal transfers. Routes 20, 98X, and 15 had the highest number of respondents that had transferred from them at 12%, 11%, and 10%, respectively. On weekends, the most common transfer destination was to Route 4.

■ Weekday ■ Weekend

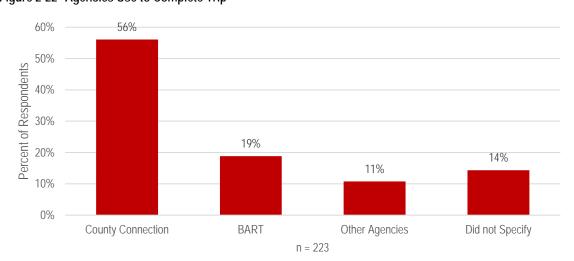
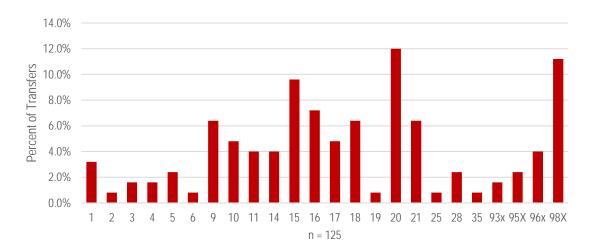


Figure 2-22 Agencies Use to Complete Trip

² The number of weekend responses to this question was too low to establish a level of significance. Therefore weekend information of transfers by transit agency, and route details for County Connection transfers, is omitted from this report. For reference, weekend responses that were collected reflect the pattern of weekday transit agency transfers.

County Connection

Figure 2-23 Distribution of Transfers by Route within County Connection



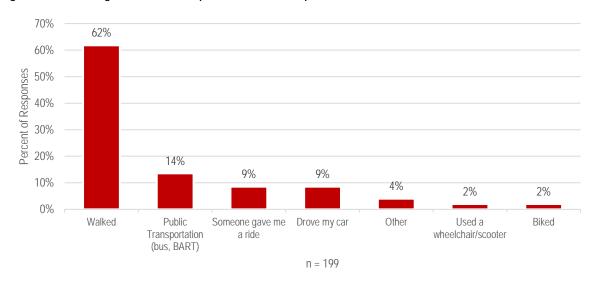
Access to Transit Stop

The survey asked riders how they traveled from home to their first bus stop that day. This question confused people for whom the trip purpose was not tied to their home address. Out of 688 weekday respondents, about two-thirds (66%) accessed a County Connection bus via walking, while 13% accomplish the first leg of their trip in a car, either by driving their own vehicle or by carpooling (Figure 2-24). Nearly all of the "Other" category responses came from riders who transferred from another bus or transit service such as BART, which indicates they answered the question in terms of their current ride or trip. In future surveys, the question should ask how people arrived at the bus stop for their current trip. Next, "transfer from public transit" should be added as a selection option to this question. On the weekend, a similar portion of riders access County Connection buses by walking (62%), while 18% access stops by car, either by driving a personal vehicle or carpooling. As with the weekday survey, most weekend riders who reported an access mode of "Other" took BART to reach their County Connection bus stop.

66% 70% Percent of Responses 60% 50% 40% 30% 16% 20% 8% 5% 10% 1% 1% 0% Walked Public Someone gave me Drove my Car Biked Used a wheelchair transportation a ride or scooter (bus, BART) n = 688

Figure 2-24 Passenger Mode of Transportation to Bus Stop, Weekday





County Connection

Figure 2-26 cross tabulates how respondents accessed bus service for their current trip based on their reported annual household incomes. Responses for "Other" that were for BART or another bus were included. While the primary mode of accessing transit for all income groups was walking, a higher household income corresponded with a decrease in the proportion of people who walked. The lowest income group, households earning under \$15,000 annual income, was the least likely to drive themselves. The spike in transit connection to the bus stop on weekends among higher income survey respondents is likely due to a small sample size.

Figure 2-26 Transit Access Mode by Income, Weekday

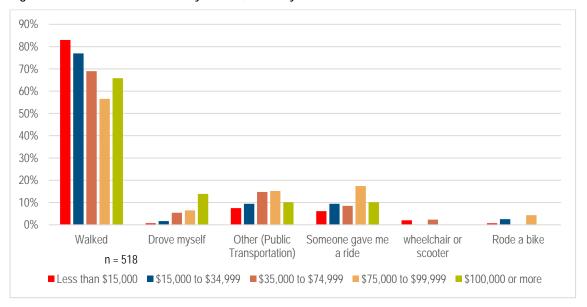


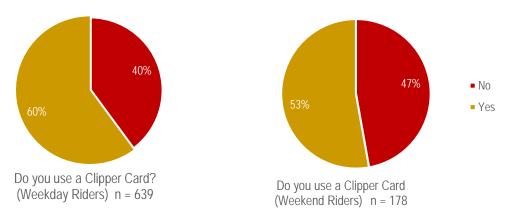
Figure 2-27 Transit Access Mode by Income, Weekend



FARES

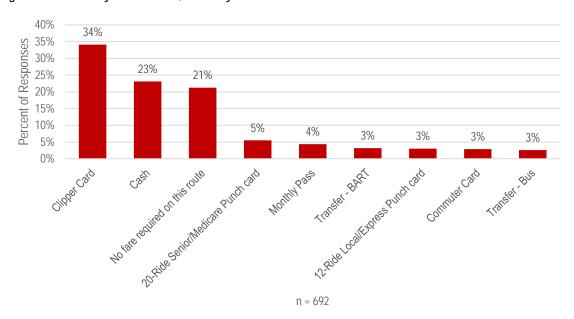
Out of 639 weekday responses, 60% of riders use a Clipper Card compared to 53% of the 198 weekend riders, as shown in Figure 2-28.

Figure 2-28 Passengers with a Clipper Card



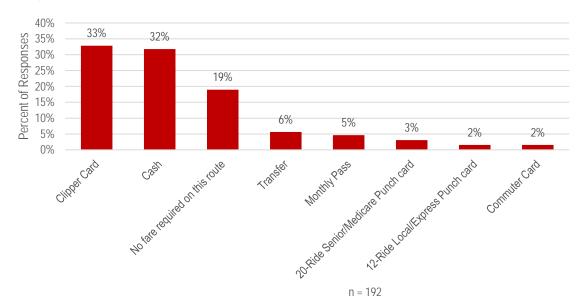
Drilling down to how respondents paid for the trip they were on while completing the survey, out of 692 weekday riders, only 34% paid for their current trip with Clipper. While that proportion was similar for weekend riders, there was a notable difference in the proportion of riders paying a cash fare between weekdays and weekends. On weekdays, 23% of riders paid cash fares, compared to 32% on the weekend, as shown in Figure 2-29. The gap between people who had a Clipper Card and those who used it for their trip is likely due to the high percentage of people riding routes that did not require a fare.

Figure 2-29 Fare Payment Method, Weekday



County Connection

Fare Payment Method, Weekend



Fare Payment Method by Race

Clipper Card and cash were the most-used fare payment methods for all races. Persons of color were 6% more likely to use Clipper Card than White riders. Racial disparities in type fare media used were greatest for the 20-Ride Senior/Medicare Punch Card on weekdays, and the Card and Clipper Card and Monthly Passes on weekends, as shown in Figure 2-30. Cash was used more by all people on weekends, but was consistent among racial groups. People of color were twice as likely as white respondents to pay with a monthly pass or 20-Ride Senior/Medicare Punch Card.

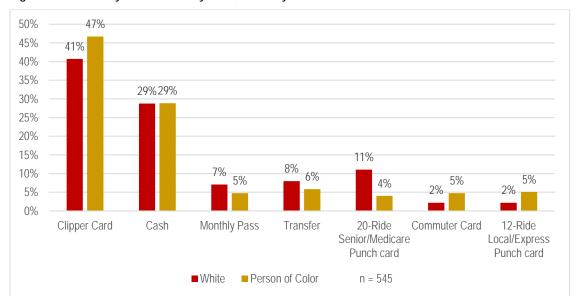
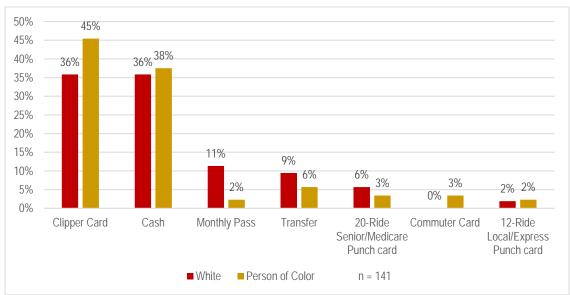


Figure 2-30 Fare Payment Method by Race, Weekday

Fare Payment Method by Race, Weekend



Note: Riders surveyed on Route 4, where no fare payment is required, were excluded from the totals above.

Fare Payment Method by Annual Household Income

Figure 2-31 shows riders' fare payment methods cross-tabulated against annual household income. Clipper Card is the most frequent form of payment over all income groups, although use is highest among passengers with higher household incomes. Over 60% of weekday responses from households making \$75,000 or more a year paid with a Clipper Card. There is a clear trend on weekdays that as income goes up, use of Clipper Card usage increases, and as income falls, use of cash increases. However, at all income levels, the use of Clipper Card was still accounted for more usage than cash fares, except for those whose households made between \$15,000 and \$34,999 per year, which was about the same for cash and Clipper Card usage.

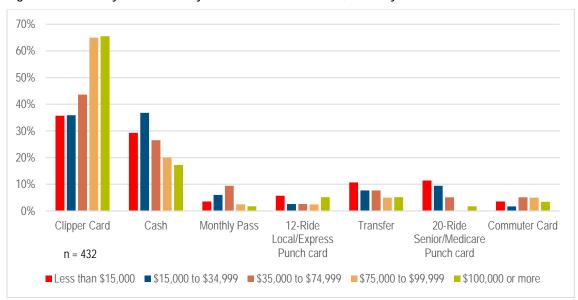
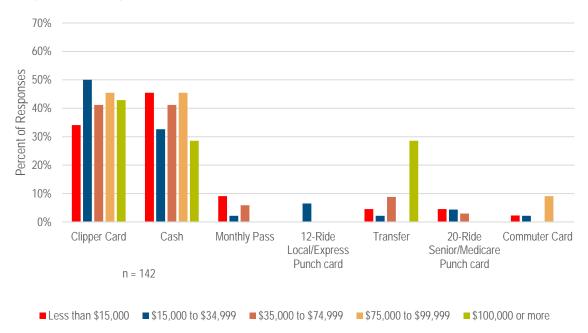


Figure 2-31 Fare Payment Method by Annual Household Income, Weekday

County Connection

Fare Payment Method by Annual Household Income, Weekend



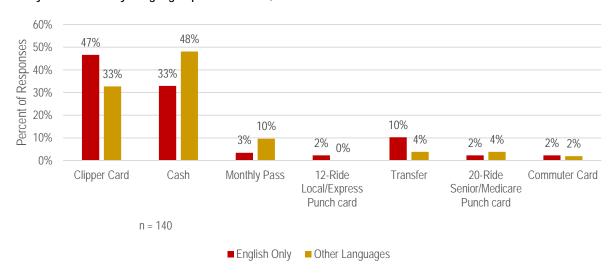
Fare Payment by Language Spoken at Home

Clipper Card remains the most used fare media for people who speak English at home, but for survey respondents who speak languages other than English at home, that pattern only holds true for weekdays, as shown in Figure 2-32. On weekends, 48% of non-English speakers paid with cash compared to only 33% who used a Clipper Card. This analysis only factored in respondents who were on routes that required a fare.

50% 44% 44% 45% 40% 35% 28%29% 30% 25% 20% 15% 7% 9% 8% 10% 6% 5% 3% 3% 3% 3% 5% 0% Clipper Card Cash Monthly Pass 12-Ride Transfer 20-Ride Commuter Card Local/Express Senior/Medicare Punch Card Punch Card n = 508■ English Only ■ Other Languages

Figure 2-32 Fare Payment Method by Language Spoken at Home, Weekday

Fare Payment Method by Language Spoken at Home, Weekend



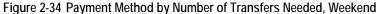
Fare Payment by Number of Transfers Needed to Complete Trip

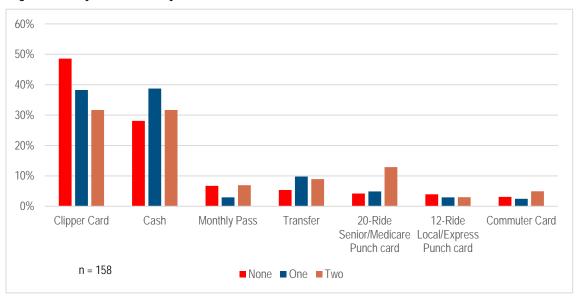
Clipper was the most used method of payment for riders who did not need to transfer to complete their trip. Once any transfer was needed, the proportion of Clipper Card usage and cash fares were similar, as seen in Figure 2-33. As with all other analyses, Clipper Card and cash payments are by far the most used fare payment methods.

The sample size for people needing more than two transfers is small; only 33 weekday respondents, or 5% indicated that they needed more than two transfers. On the weekend, only three riders needed more than two transfers, so they were excluded from the graph below.

60% 50% 40% 30% 20% 10% 0% Clipper Card Cash 12-Ride Monthly Pass 20-Ride Commuter Card Transfer Senior/Medicare Local/Express Punch card Punch card n = 537■ None ■ One ■ Two ■ Three or more

Figure 2-33 Payment Method by Number of Transfers Needed, Weekday





County Connection

HOW PASSENGERS GET TRANSIT INFORMATION

Understanding how passengers access information can inform a longer term marketing and communication strategy for County Connection to increase ridership and overall satisfaction. County Connection passengers access transit schedule information through a variety of methods. Figure 2-35shows the distribution of information sources used by riders to get transit information. Printed schedules are still the primary way people get information. Weekend riders were 10% less likely to use the Internet than weekday riders, but it was still used by nearly a quarter of riders. Because respondents selected multiple modes of gathering information percentages do not add up to 100%.

Future categories for the survey should include other websites, such as Google Maps or a general "Internet" catchall that is distinct from the County Connection Website, and physical locations, such as senior centers or libraries. This analysis was able to break out "other website" due to surveyor write-ins, but this number might have been higher if it had been on the list.

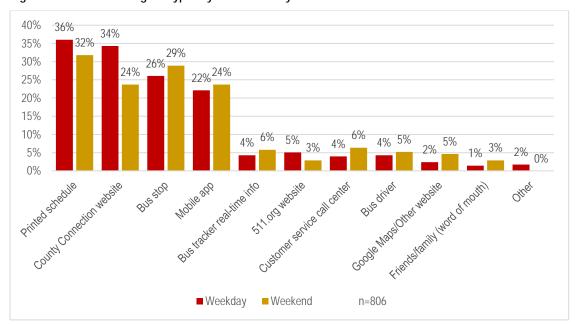


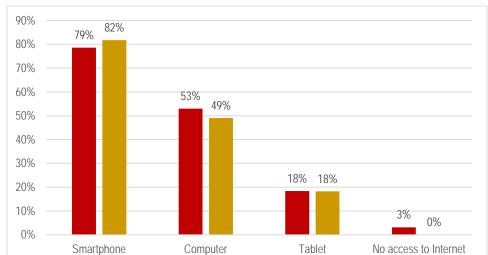
Figure 2-35 How Passengers Typically Obtain County Connection Schedule Information

County Connection

Internet Access

Riders continue to increase their ability to access information. Surveyed riders were asked, "How do you access the Internet?" Out of 570 weekday respondents, 79% indicated they had access to a smartphone. On weekends, with 159 respondents, that number was slightly higher, at 82%. Respondents could select more than one device if they accessed the Internet from multiple sources. The results are shown in Figure 2-36. Reponses reflected similar results from weekend riders. There were no respondents on weekends who said they did not have any access to the Internet.

n = 729



■ Weekday ■ Weekend

Figure 2-36 Passenger Internet Access

PASSENGER SATISFACTION

The passenger survey effort asked passengers to comment on their level satisfaction with County Connection fixed-route services. Overall, respondents had a positive opinion of County Connection, with every question receiving a majority of positive (Good or Excellent) responses. Both weekday and weekend riders are most satisfied with driver courtesy (89%) and the condition of the buses (88%). It is also notable that 79% of weekday respondents are satisfied with the ontime performance of the system, and 78% are satisfied with the length of their trip.

The most commonly suggested areas for improvement included the frequency of service and the time service ends, each of which were earned 22% of their ratings from weekday riders as Poor or Fair. Weekend riders expressed similar dissatisfaction with County Connection's service frequency and span of service; 30% and 27% of riders, respectively, ranked these areas as Fair or Poor.

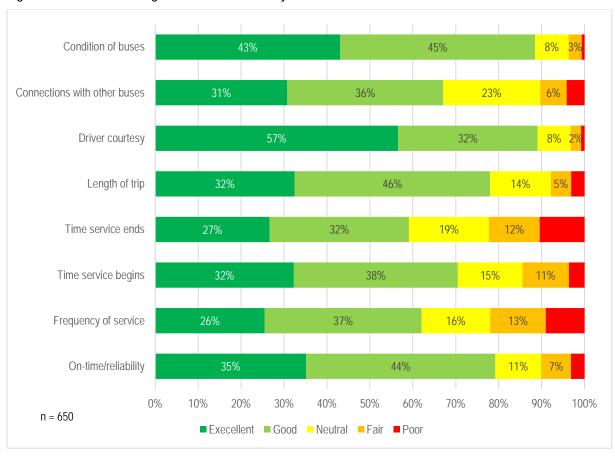
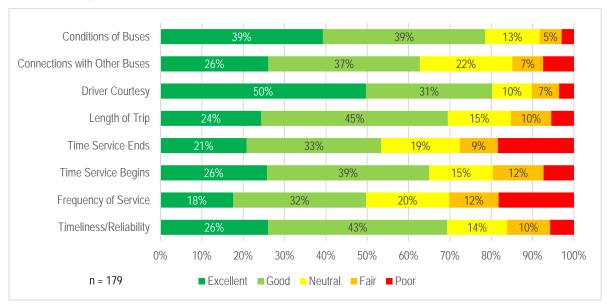


Figure 2-37 Overall Passenger Satisfaction, Weekday

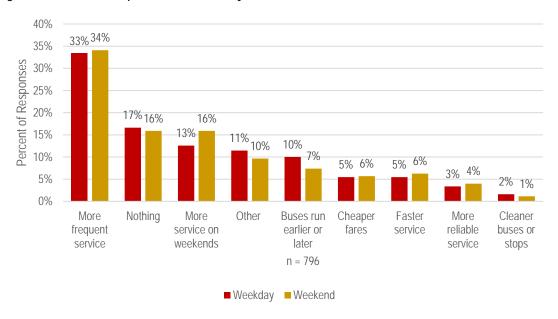
County Connection





The survey asked passengers to choose one thing to improve County Connection service. The response rates are shown in Figure 2-38. More frequent service received the highest number of responses (33%). Nearly a sixth of weekday riders indicated that they did not have improvements to recommend to make the service better. More weekend service, and expanded weekday schedules received the third- and fourth-highest responses, with 13% and 10% respectively. Weekend riders reported similar preferences, with more frequent service and more weekend service scoring highest among the available choices.

Figure 2-38 Preferred Improvements to County Connection Services



600-SERIES ROUTE ANALYSIS

County connection runs 20 600-series bus routes. Because this population has been challenging to reliably survey with onboard paper surveys, a different methodology was used for this targeted population. County Connection staff pulled video for trips occurring between February 6th and February 8th were pulled on March 12th, 2018.

METHODOLOGY

A sample of one trip per route was randomly selected for each route, with seven morning trips and 13 afternoon trips selected. Dispatch downloaded video footage from cameras facing the passengers for each chosen trip. County Connection staff then looked at screen captures when the passenger load was at its highest, which was just before drop off in the morning, and just after pick up at the school in the afternoon.

County Connection staff recorded the following information based on visual inspection:

- Route
- Trip
- Time of day
- Direction of travel
- Number of people on bus at maximum load
- Observed proportion of White and non-White passengers
- Number of riders who did not appear to be students

Without a formal survey, the racial and age component is an estimate.

RESULTS

The following routes were observed to carry a passenger load that was over 50% non-White:

•	605	•	615
•	611	•	616
•	612	•	619
•	613	•	622
•	614	•	635

The 600-series routes' racial breakdown by route is shown in Figure 3-1.

County Connection

Figure 3-1 Load and Racial Breakdown of Riders

Route	Passengers on Board	Percent Minority	Route	Passengers on Board	Percent Minority
601	22	14%	615	17	82%
602	30	0%	616	17	100%
603	18	17%	619	47	89%
605	33	52%	622	20	85%
606	40	13%	623	30	43%
608	5	40%	625	9	33%
611	43	100%	626	21	9%
612	20	95%	627	30	10%
613	52	96%	635	29	76%
614	10	100%	636	29	45%

County Connection

4 TRANSFER FARE ANALYSIS

The goal of a transfer fare analysis is to use paper transfers to analyze travel patterns, such as which routes people transfer between, and from which other regional transit systems they travel. County Connection can access Clipper Card transfer data, but it is harder to analyze trends for cash-paying customers. This analysis looks at transfer information for cash-paying customers.

METHODOLOGY

Between March 8th and 9th, 2018, operators on each trip of each route (for fare-collecting routes) placed envelopes on the front of the fare boxes to gather fare transfers. Riders were asked to drop their paper ticket transfers into the folder, which the drivers then sealed and returned to dispatch at the end of their assignment. Drivers switched envelopes based on the direction of their trip. Nelson\Nygaard then collected and analyzed the information of the transfers.

Inevitably, there will some level of underreporting of the total transfers that took place during the collection period. For example, Route 10 becomes Route 20 at the end of each trip, but riders still on the bus at the end of the Route 10 trip may not surrender a paper transfer at the beginning of the new Route 20 trip. This makes sense for the passenger because they have not completed their trip and have not transferred to a new bus, but runs the risk of being miscategorized by drivers for ridership at the Route level.

One limitation of paper transfers is that there is no information about the route from which the rider came on paper transfers. Furthermore, passengers coming from a free shuttle, or going to a free shuttle would not have or be required to surrender a paper transfer. Free shuttles were not included in this analysis because transfers are not needed. Free routes include:

- 4 Broadway Plaza/BART Walnut Creek
- 5 Creekside/BART Walnut Creek
- 7 Shadelands/BART Pleasant Hill

County Connection

RESULTS

There were 1,172 paper transfers collected. Over 50% of all paper transfers occurred on six routes, as shown in Figure 4-1.

Figure 4-1 Most Paper Transfers Received

Route	% Transfers	Rank
10-BART Concord/Clayton	12%	1
20-DVC/BART Concord	10%	2
16-AMTRAK/BART Concord	9%	3
15-Treat Blvd	8%	4
21-BART Walnut Creek/San Ramon	7%	5
9- DVC/BART Walnut Creek	6%	6
TOTAL	52%	-

Among the 15 north-south routes, there were 648 total transfers, with about the same number in each direction. At the route level, the most notable exception was on Route 21, which had 70 paper transfers on buses heading southbound and only 16 traveling northbound (Figure 4-2). "Transfers" refers to transfers within the County Connection System, from one route to another as compared to a transfer from outside the system such as BART.

Figure 4-2 Paper Transfers to North/South Routes

То	Total Southbound	Total Northbound	Transfers	Total	Percent Internal
1	16	16	24	32	75%
2	1	0	0	1	0%
9	37	31	59	68	87%
14	29	34	52	63	83%
16	44	64	91	108	84%
17	17	39	47	56	84%
18	18	27	30	45	67%
19	9	14	15	23	65%
21	70	16	55	86	64%
35	21	18	30	39	77%
36	14	18	17	32	53%
95X	7	3	6	10	60%
96X	16	5	15	21	71%
97X	0	1	0	1	0%
98X	28	35	57	63	91%
Total	327	321	498	648	77%

County Connection

There were 498 paper transfers used on 10 east/westbound routes. There were 23% more transfers made in the eastbound direction (Figure 4-3). The 93X had a small number of transfers, but more than half were people coming from outside the County Connection system.

Figure 4-3 Paper Transfers to East/West Routes

To	Total Southbound	Total Northbound	Transfers	Total	Percent Internal
1M	2	0	2	2	100%
6	15	7	6	22	27%
10	88	52	102	140	73%
11	23	22	35	45	78%
15	46	46	74	92	80%
20	51	65	84	116	72%
25	9	0	7	9	78%
28	25	22	36	47	77%
91X	6	0	4	6	67%
93X	12	7	8	19	42%
Total	277	221	358	498	72%

Route 3 is a loop route, so transfers were not calculated by direction. There were 26 people that transferred to Route 3 on the day of data collection. All were from within the County Connection network.

Just over 25% of all people transferred from another system. BART was the primary connection, with 194 paper transfers submitted. The next most common system for people to have transferred from was Tri-Delta, with 30 people, followed by LAVTA with 21. Figure 4-4 through Figure 4-8 display more detail of the transfers recorded from other transit systems.

Figure 4-4 shows the County Connection routes people transferred to after riding BART with a paper transfer. The BART transfers were determined by counting the physical BART transfers that were collected, based on route and direction. Routes 10, 21, and 20 had the highest number of people coming from BART, with 33, 30 and 22 transfers, respectively. These three routes made up 44% of all transfers from BART.

County Connection

Figure 4-4 Paper Transfers to County Connection from BART, by Direction

To Route	Total	Southbound	Northbound	Eastbound	Westbound
1	6	2	4		
6	16			12	4
9	6	1	5		
10	33			25	8
11	6			5	1
14	9	6	3		
15	12			5	7
16	9		9		
17	8	6	2		
18	9		9		
19	1		1		
20	22			5	17
21	30	30			
25	2			2	
28	3				3
35	5		5		
93X	3			3	
95X	4	4			
96X	6	6			
97X	1		1		
98X	3		3		
Total	194	55	42	57	40

County Connection

Figure 4-5 Paper Transfers to County Connection from Tri-Delta, by Direction

To Route	Total	Southbound	Northbound	Eastbound	Westbound
10	4			3	1
14	1	1			
15	4				4
16	5	1	4		
19	2		2		
20	5			1	4
28	1			1	
91X	1			1	
93X	7				7
Total	30	2	6	6	16

Figure 4-6 Paper Transfers to County Connection from LAVTA, by Direction

To Route	Total	Southbound	Northbound	Eastbound	Westbound
14	1		1		
35	4		4		
36	15		15		
93X	1			1	
Total	21		20	1	

Figure 4-7 Paper Transfers to County Connection from Solano County Transit, by Direction

To Route	Total	Southbound	Northbound	Eastbound	Westbound
1	2		2		
9	2		2		
11	3			3	
20	1			1	
98X	1		1		
Total	9		5	4	

County Connection

Only 11 people came from Capitol Corridor, AC Transit, Fairfield and Suisun Transit (FAST), or Western Contra Costa Transit Authority (WestCAT) on the day the data collection took place. Figure 4-8 shows the routes onto which people transferred from the other systems.

Figure 4-8 Paper Transfers from Other Regional Transit Agencies

System	Transferred To Route	Total Riders
AC Transit	10	1
Capitol Corridor	98X	2
	9	1
FAST	18	2
	21	1
	16	1
WestCAT	18	1
WestCAT	19	1
	28	1
Total	11	

APPENDIX A

On-Board Survey Instrument, English and Spanish

County Connection

ON-BOARD SURVEY



DEAR RIDER:

Please take a minute to fill this survey out and help us plan for your transit needs. It will only take five minutes. Place the survey in the yellow envelope as you exit the bus, or hand it to the person who gave it to you.

Thank you!

1.	What route are you on right now?		8.	How did you pay you	r fare to	day?
				□ _₁ Cash	□ ₆ Cd	ommuter Card
2	Where are you going now?			\square_{2} Clipper Card	$\square_7 M$	onthly Pass
۷.				□ ₃ Transfer –	\square_{8} No	o fare required on this route
	☐ ₁ Home	□ ₅ Church		\Box_{a} BART or \Box_{b} Bus		
	□₂ Work □₅ Healthcare			☐ ₄ 12-Ride Local/Express F		
	•	□ ₇ Visiting friends/family	$\square_{\scriptscriptstyle{5}}$ 20-Ride Senior/Medicare Punch card			ard
	\square_{4} Shopping \square_{8} Entertainment \square_{9} Other (specify)		9. Do you use a Clipper card? □, Yes □, No			□ Voc □ No
			Э.	Do you use a clipper	carur	
3.	How did you get from he today? (Check only ONE	How did you get from home to your first bus stop		. How would you have Connection had not b		
	, Walked – how many minutes?			□ ₁ Drive own vehicle	$\square_{_4}$ Ri	de bicycle
		er – how many minutes?		□₂Carpool/vanpool	$\square_{5} W$	alk
	-			☐₃ Taxi/Uber/Lyft	□ ₆ W	ouldn't make trip
	□ ₃ Rode my bicycle – <i>how many miles?</i>		☐, Get a ride with friend/family member			er
	□ ₅ Someone gave me a ride – how many miles?		☐, Other (specify)			
	□ Other (please specify)			0		
1	v		11	. What is your approxi income?	mate an	nual household
٦.	Did you transfer to connect to this bus? □₁ No			$\square_{\scriptscriptstyle 1}$ Less than \$15,000	\square_{4} \$7	75,000 to \$99,999
				\square_2 \$15,000 to \$34,999	□ ₅ \$1	00,000 or more
	☐ ₂ Yes – Which Route?			\square_3 \$35,000 to \$74,999		
5.	How many total transfer one-way trip?	s will you make on this	12	. How many people liv which Zip Code?	e in you	r household and in
	\square_1 None	\square_3 Two		#People in Household		
	\square_{2} One	$\square_{_4}$ Three or more		Zip Code		
c	Llow offen de veu ride (Sounty Connection 2		Zip 00de		
0.	How often do you ride C		13	. Are you Hispanic or I	_atino?	
	Less than one day a week	•		□, Yes	\square_2 No)
	\square_{2} 1-2 days a week	⊔ ₄ 5 or more days a week				4 . 4 . 4 . 6
7.	What is your primary re Connection for this trip	ason for choosing County ?	14	which of the following \Box_1 White	g ao yo	u most identity with:
	□ ₁ Cost	□ _₄ Avoiding traffic/parking		□₂Black/African American		
	Convenience	☐₅ Not able to drive	$\square_{_3}$ Asian			
	☐, Lack of car	Prefer public transit to driving	$\square_{_4}$ Native Hawaiian/Pacific Islander			
	•		□₅American Indian/Alaskan Native			
	,			\square_{ϵ} Multiracial		
				□, Other (specify)		



County Connection

15. Do you speak a languaghome? □₁No	ge other than English at	\square_1 County connection.com \square_3 County Connection's Face \square_2 County Connection's Twitter feed			
☐₂ Yes ► indicate language: ☐₃ Spanish ☐₃ Vietnamese ☐₃ Other:	□ ₄ Tagalog □ ₅ Farsi □ ₇ Chinese	21. What is your employm ☐₁ Employed full-time ☐₂ Employed part-time 22. Are you a student?	\square_{3} Retired		
16. How well do you speak □₁Very well □₂Acceptable	\square_3 Not well \square_4 Not at all	☐ ₁ Full-time student ☐ ₂ Pa 23. How do you access th ☐ ₁ Smartphone	\square_{3} Tablet		
17. What is your gender? 18. What is your age? □₁ Under 18 □₂ 19 to 35 □₄ 56 to	55 □ _s 75 or older	$\square_{\scriptscriptstyle 1}$ Nothing	ervice, what would you pick?		
19. How do you typically of about the County Conn □₁ Printed schedule □₂ County Connection website (countyconnection.com) □₃ At the bus stop □₄ Mobile app □₁₀ Other (specify)	ection? (check all that apply)	□ ₂ More frequent service. □ ₃ Faster service □ ₄ Buses run earlier or later □ ₉ Other (specify)	☐ ₇ Cleaner buses or stops ☐ ₈ More service on weekends		

20. In a typical month do you visit or receive...?

25. How do you rate County Connection in the following areas?

	Poor 1	Fair 2	Neutral 3	Good 4	Excellent 5
a. On-time/reliability	\square_1	\square_{2}	\square_3	\square_4	\square_{5}
b. Frequency of service	\Box_1	\square_2	\square_3	\square_4	\square_5
c. Time service begins	\Box_1	\square_{2}	\square_3	$\square_{_4}$	\square_5
d. Time service ends		\square_2	\square_3	\square_4	\square_5
e. Length of trip	\Box_1	\square_2	\square_3	$\square_{_4}$	\square_5
f. Driver courtesy	\Box_1	$\square_{_{2}}$	\square_3	\square_4	
g. Connections with other buses	\Box_1	$\square_{_{2}}$	\square_3	$\square_{_4}$	\square_5
h. Condition of buses		\square_2		\square_4	

Thank you

for your participation in this survey.

Your responses will be kept strictly confidential.



County Connection

ENCUESTA A BORDO



ESTIMADO PASAJERO:

Sírvase tomarse unos minutos para completar esta encuesta y ayudarnos a planificar para satisfacer sus necesidades de transporte. Solo demorará cinco minutos. Cuando baje del autobús, coloque la encuesta en el sobre amarillo o devuélvasela a la persona que se la entregó.

P		iGra	acias	!	
1.	¿En qué ruta se encue	ntra ahora?	8.	¿Cómo pagó la tarifa hoy □₁Dinero en efectivo	☐, Tarjeta para perforar de
2.	□₁ Casa □₂ Trabajo □₃ Escuela □₄ De compras	omento? □₅ Iglesia □₆ Centro de atención médica □٫ Visita a amigos/familiares □₆ Entretenimiento	٥	☐2 Tarjeta Clipper ☐3 Trasbordo: ☐4 Tarjeta para perforar de 12 viajes locales/en expreso ¿Utiliza una tarjeta Clipp	20 viajes Senior/Medicare □ ₆ Tarjeta de pasajero habitual □ ₇ Pase mensual □ ₈ No se requiere tarifa para esta ruta
3.	¿Cómo llegó de su hog autobús hoy? (Marque	gar a la primera estación de solo <u>UNA</u> respuesta)		. Si no tuviera a disposicio	ón County Connection,
	\square_2 En silla de ruedas o scoot \square_3 En mi bicicleta (¿cuántas n \square_4 En mi automóvil (¿cuántas \square_5 Alguien me trajo (¿cuántas	rtos?) er eléctrico (¿cuántos minutos?) nillas?) millas?) millas?)		¿cómo hubiera realizado □₁ En mi propio vehículo □₂ Viaje compartido en automóvil/van □₃ Taxi/Uber/Lyft □₄ En bicicleta □₅ Caminando	□ No hubiera hecho este recorrido □ Me llevaría un amigo/ familiar □ Otro (favor de especificar)
4.	¿Hizo trasbordo para t □, No		11	. ¿Cuáles son los ingresos su hogar?	s anuales aproximados de
5.	☐₂ Sí (¿qué ruta tomó?) ¿Cuántos trasbordos l en un solo sentido?	nará en total para este viaje		□ ₁ Menos de \$15,000 □ ₂ De \$15,000 a \$34,999 □ ₃ De \$35,000 a \$74,999	□ ₄ De \$75,000 a \$99,999 □ ₅ \$100,000 o más
	\square_1 Ninguno \square_2 Uno	□₃ Dos □₄ Tres o más	12	. ¿Cuántas personas vive código postal?	n en su hogar y cuál es su
6.	¿Con qué frecuencia u County Connection?	tiliza el transporte de ana □₃3 a 4 días por semana □₄5 o más días a la semana	13	Nº de personas que viven en su Código postal . ¿Es hispano o latino?	
7.	¿Cuál es el motivo prir Connection para este i	ncipal por el que usa County recorrido?	14	ା, Sí . ¿Con cuál de las siguien	□₂No tes opciones se identifica
	□ ₁ Costo □ ₂ Conveniencia □ ₃ No tengo automóvil □ ₄ Evitar el tráfico/ estacionamiento	□ ₅ No puedo conducir □ ₆ Prefiero el transporte público en lugar de conducir □ ₇ Otro (favor de especificar)		mejor? □₁ Blanco □₂ Negro/afroamericano □₃ Asiático □₄ Nativo de Hawái/isleño del Pacífico	 □₅ Indígena norteamericanol indígena de Alaska □₆ Multirracial □₇ Otro (favor de especificar)

CONTINÚA ▶

County Connection

15. ¿Habla en el hogar un idio inglés? □, No	ma que no sea el	20. En un mes típico, ¿visita ☐₁Countyconnection.com	
□₂Sí ► indique el idioma:		☐₂Cuenta de Twitter de County	
-	₄Tagalo □₅Farsi	☐ ₃ Facebook de County Connec	tion
\square_3 Español \square	Thino	21. ¿Cuál es su situación lab	oral?
□ ₈ Otro:		□, Empleado de tiempo complet	o □₃ Jubilado
16. ¿Qué tan bien habla usted	inglés?	□₂Empleado de medio tiempo	□ ₄ Desempleado
□ ₁ Muy bien	□₃No muy bien	22. ¿Es estudiante?	
□ ₂ Aceptable	$\square_{_4}$ No lo habla	☐₁ Estudiante de tiempo complet	to
17 · Cuál es su seve2	aculina □ Famonina	☐₂ Estudiante de medio tiempo	
17. ¿Cuál es su sexo? □₁ Mas	scullio Li ₂ Ferrienino	□₃ No es estudiante	
 18. ¿Qué edad tiene? □₁ Menos de 18 años □₃ De 36 a □₂ De 19 a 35 años □₄ De 56 a 19. ¿De qué manera obtiene h información sobre los hora Connection? (marque todas la □₁ Horario impreso □₂ Sitio web de County 	a 74 años abitualmente arios de County as opciones que correspondan) □ _e Sitio web 511.org □ ₇ Amigos/familiares	 23. ¿Cómo accede a Internet □₁ Teléfono inteligente □₂ Computadora 24. Si pudiera elegir solo una servicio de County Conne elección? □₁ Nada □ Un servicio más frecuente 	□₃ Tableta □₄ No tiene acceso a Internet a cosa para mejorar el ection, ¿cuál sería su □₆ Tarifas más baratas
Connection (countyconnection.com) □₃ En la parada de autobuses □₄Aplicación móvil □₅ Centro telefónico de Servicio al Pasajero	(boca a boca) □ ₈ Conductor del autobús □ ₉ Información en tiempo real de Bus Tracker □ ₁₀ Otro (favor de especificar)	 □₂ Un servicio más frecuente □₃ Un servicio más veloz □₄ Ampliación del horario de los autobuses □₅ Un servicio más confiable 	□, Más limpieza en los autobuses o paradas □, Más servicio los fines de semana □, Otro (favor de especificar)

25. ¿Cómo califica al servicio de County Connection en las siguientes áreas?

	Malo 1	Regular 2	Neutral 3	Bueno 4	Excelente 5
a. Puntualidad/confiabilidad	\Box_1	\square_2	\square_3	\square_4	\square_5
b. Frecuencia del servicio	\square_1	\square_2	\square_3	\square_4	\square_5
c. Hora en la que comienza el servicio	\Box_1		\square_3	$\square_{_4}$	
d. Hora en la que termina el servicio	\Box_1			\square_4	\square_5
e. Duración del recorrido	\Box_1		\square_3	\square_4	
f. Amabilidad del conductor	\square_1		\square_3	\square_4	\square_5
g. Conexiones con otros autobuses	\Box_1			\square_4	\square_5
h. Estado de los autobuses		\Box ,			

Gracias

por participar en esta encuesta. Sus respuestas serán estrictamente confidenciales.



APPENDIX B

Open-Ended Survey Responses

Appendix B Open-Ended Survey Responses

Commendations

Route	Comment
4	All Good
4	Excellent service
4	Drivers are all very nice
15	Our Driver Sheila is outstanding. Great Service! Sheila and Oscar are outstanding drivers.
35	Good service most of the time!! & Good Surveyor

General

Route	Comment
4	Driver courtesy depends
11	I hate public transportation!!

Additional Improvements People Would Like to See

Route	Comment
4	expand weekend service
4	More frequent service and more service on weekends
9	Need better weekend
10	All routes to run on weekend. Routes 11, 15, 18 and 19 need to run more often
14	More service on weekends
15	Too short of the weekends
16	Buses run earlier and later, more weekend service, and more reliable service
20	I really want to use a clipper card with a smartphone
20	Small Bus
21	very poor we have to wait 45 minutes if we miss the bus
301	More service on weekends - Always - to me Hospital!
95X	Better weekend service

County Connection

Route-Specific Requests

Route	Comment
4	VA 17 connection, wish you still had #17, Dial A Ride only for those in wheelchair, no help
4	on time reliability poor especially #9 from DVC
4	Please don't remove route 3 Thank you!
6	The 250 bus sometimes never shows up at all and is very unreliable, I have been left stranded multiple times!
10	Add bus on Ygnacio Blvd to Concord Pavillion
15	I have la ated the center part of the 9 and 15 routes to keep in my purse. Put the stop back in front of Dana shopping center opposite the one going to the library it was removed + I see 2 ladies with walkers having to walk from the one far up to landana to walk to 711 and shops in mulberry. Extra gold stars for this driver today Sheila 1151
25	Ti g of connections especially with the construction going on. Improve the route upon entrance to [Walnut Creek] BART station. Run bus later than 6 PM especially if connecting bus gets into a traffic jam entering the bus hub. Sometimes CCTA will not inform connecting driver that there is a delay. Probably if there were more delays, coordination to a bus schedule temporarily should be in place.
315	Please run at least the #28 or something on weekends. Would get shelter, industrial and DVC
93x	With the new E-Bart station opening, no longer will be parking for those who catch the 93X at hillcrest P&R, many people rely on that at P&R, are there any plans for new P&R location?
93x	More frequent stop new contra loma antioch
96x	PM pickups are sometimes tardy from route stops (probably due to traffic)