City staff validation of data study

Introduction:

The purpose of this draft report is to conduct a statistical analysis of the results from the “Fiber to the home” survey (FTTH). All results presented below were computed at a level of significance of 95%
As the FTTH survey covers a very broad variety of questions, this preliminary report focuses on questions from which responses could influence the decision to proceed with the FTTH project. More specifically, the following decision criteria were identified.

1. Question 17: *If your local telephone service were offered through the City at the same price as you currently pay, would you be willing to switch so that Palo Alto would benefit from the revenue?*
2. Question 19: *If CPAU were to provide this all digital service at a cost equal to or lower than what other providers currently charge, how interested would you be in subscribing to each of the following services?*

- *Cable TV*
- *High Speed Internet*

These two questions summarize the products that will be offered to CPAU’s customers, should the FTTH project be approved by the City Counsel. Pricing, speed, reliability, customer service, and current level of customer satisfaction are attributes of the products listed above, which could have an impact on customers’ participation. For the purpose of this survey, responses to question 17 and 19 were sliced demographically as follows

- by age groups
- by home ownership

As most of the respondents (83% to this survey), are homeowners, it appears that the sample surveyed overrepresents the homeowner segment of Palo Alto’s population (according to 2000 Santa Clara Census data, homeownership level in Palo Alto is 57.1%.) Consequently, we evaluated how participation levels varied within the two demographic groups (i.e., homeowners and renters.) We also verified that the sample of renters surveyed was large enough to provide the Telecommunication Utility with statistically meaningful results. Finally, we looked at the influence of age on spending as well as the influence of zip codes on demand for high-speed internet and TV services.

Summary of Major Findings

Exhibit one presents the expected level of participation in each service offered over CPAU’s fiber optic network.

Exhibit 1:
Confidence interval for customer subscription to each service offered over CPAU’s fiber optic network

%	Age Unknown	18 to 24[1]	25-34	35-49	50-65	> 65	Total
High Speed	32-81	100	78-94	80-88	70-80	53-67	73-78
Cable TV	8-51	38-100	52-75	52-63	47-58	36-50	50-56
Telephone	49-92	43-100	71-89	75-84	69-79	70-82	74-80

Exhibit 2
Sample Population Distribution

	Count	Percent
Refuse	17	1.87
18-24	8	0.88
25-34	70	7.72
35-49	322	35.50

[1] As only eight (8) respondents were between 18 to 24 years old, the confidence interval that contains the populations “true” percentage is large.

50-65	289	31.86
>65	201	22.16

As presented in Exhibit 1, more than 73% of the population states that it is likely to subscribe to high speed internet service offered by CPAU over its fiber optic network, while more than 74% of the population appears likely to switch to local phone service offered by CPAU over its network. The penetration level in the local cable TV market seems to be of smaller magnitude (50 to 56%). Cable TV's current penetration in the Palo Alto market is estimated to range between 40 to 46%. This survey shows that 66 to 74% of the current cable TV subscribers are either "*very interested*" or "*very excited*" about subscribing to TV services provided through Palo Alto's fiber optic network.
It is worth noting that between 27 to 33% of CPAU's population is not subscribing to any TV services or refuses to answer about their TV service subscription. 71 to 81% of this segment of the population is not likely to subscribe to TV services over CPAU's fiber optic network.

Homeownership
A significantly larger number of renters than homeowners will subscribe to high speed Internet and TV services over the City's fiber optic network. While subscription to local phone service is likely to be identical among renters and homeowners. Exhibit 3 presents the likely participation to the three services broken down by homeownership.
Exhibit 3
Impact of Homeownership on Subscription to TV, Internet and Phone Services

	High Speed		**Cable TV**		**Telephone**	
	Min	*Max*	*Min*	*Max*	*Min*	*Max*
Renter	75%	87%	53%	69%	68%	81%
Homeowner	71%	78%	48%	55%	74%	80%

Finally, one could wonder if the size of the rental population surveyed was large enough to infer customers' participation levels to the products offered through CPAU's fiber optic network. At a level of confidence of 95%, the results pertaining to the rental population are accurate within roughly 7%[2].

Influence of Age
At a level of confidence of 95%, we found no evidence that age influences customers spending on Internet cable or DSL services. The sample of respondents subscribing to a satellite service for Internet connection was too small to evaluate the influence of age groups on such subscription. The median spending level on DSL, satellite and cable subscriptions ranges from $41 to $50 per month, respectively. Finally, we found no evidence that age influences the type of service that Palo Alto residents are currently buying.

Influence of Zip Codes
At a level of confidence of 95% we found no evidence that the demand for high-speed Internet connection or TV services over cable would vary between zip codes[3].

Market Assessment for TV Services Over Fiber
Exhibit 4 presents the percentage of cable[4] and satellite subscribers who are likely to purchase TV services from CPAU[5]. The expected behavior was further studied between those customers who purchase a premium package of TV programs and those who don't.

Exhibit 4

[2] The min and max are roughly 7 percentage points away from the expected value
[3] The sample size for zip codes 94307 and 94305 were too small to infer anything about demand for high speed Internet connection.
[4] Digital or basic cable
[5] Answered very excited or very excited to the question about CPAU providing TV service over its fiber optic network.

	With Premium Channels	Without Premium Channels
Basic and Digital Cable	67% to 85%	64% to 73%
Satellite	26% to 59%	32% to 53%

Conclusions:
1. While homeowners are over represented, the renters’ responses do not vary significantly from the homeowners. Also sufficient renters responded to make valid projections about their entire population.
2. The younger age group is insufficiently represented. The project manager should decide whether they are likely to make decisions about purchases of fiber services. If their decision making is not likely to make a significant impact on the over all revenue projections then there is no reason to resample that age group.
3. Response patterns are similar across all zip codes (geographic locations).
4. The project manager will have to use his professional judgment to translate the response patterns into actual subscription rates, based on his experience in similar build out situations.